BAREILLY INTERNATIONAL UNIVERSITY, BAREILLY

Title: Newborn Care: Effectiveness of Simulation Training for Staff Nurses

By

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Protocol of Thesis to be submitted to the Bareilly International University, Bareilly for the partial fulfilment of the requirements for the degree of

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Faculty of Nursing

(Affiliated to Bareilly International University, Bareilly)

DECLARATION BY THE CANDIDATE

I hereby declare that this thesis protocol entitled **"**Newborn Care: effectiveness of simulation training on Knowledge and Practice of Staff Nurses**"** will be a bonafide and genuine research work carried out by me under the supervision of **Dr.Prema P** *for partial fulfilment* of the regulations for the Award of the degree of **Doctor of Philosophy** in **Nursing.**

Date: 26.3.2019 **Signature of the Candidate**

Mrs.PrathibaManoharam.B

Certificate bythe Supervisor

Faculty of Nursing

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This is to certify that the facilities for the research work entitled "Newborn Care: effectiveness of simulation training on Knowledge and Practice of Staff Nurses" allotted to **Mrs.Prathiba Manoharam.B** under my direct supervision and guidance do exist in Faculty of Nursing, Bareilly.

I will ensure the authenticity of the thesis protocol topic and research methodology which conforms to the standards of Bareilly International University.

Supervisor

Signature 28/4/19

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Ph D in Nursing

Faculty of Nursing

Index

Introduction	Page 6-8
Brief review of literature	Page 8-10
Aim & Objectives	Page 11
Material & Methods	Page 12-16
Bibliography (Vancouver system)	Page 17
Appendix (Proforma/Data sheet, Consent form, etc.)	Page 18-22

1. Introduction

Train the child in the way he should go and when he is old he will not depart- proverbs:22:6

Newborn care is a care applied immediately after the baby is born and continued for at least the first 7 days after birth [(1).] It is to assist the newborn in adaptation to the extra uterine environment[(2)] .Immediate newborn care includes clear of the airway, APGAR score , care of the cord, care of the eyes, care of skin, body temperature maintenance , breast feeding initiation and establishment[(3).]

Most newborn deaths can be prevented by mother and health care workers through carrying out healthy practices like cleaning airway , stimulate cry, dry the baby , immediate warming , cleaning umbilical cord and wiping eyes with clean cloths, immediate and exclusive breast feeding recognition and care seeking for special care[(1)]The vulnerable period of neonatal is first 28 days of life . In 2017, 18 death per 1000 live birth occurred in the 1st month of life[(4).] Global health observatory data shows 4.1 million death occurred in infant period in the year 2017[(5)]

UNICEF reported that India holds the 12th position over 52 lower middle income nation in newborn mortality rate. Death of newborn was recorded 25.5 death/1000 live births in India. 57% of India's neonatal death has been occurred in Uttar Pradesh, Bihar, Madhya Pradesh, Rajasthan. The report also shows highest mortality of girls occur only in India which is one among the major country in the world. Unavailable and inaccessible health care, untrained health workers are the major reason for the increase mortality rate of newborn.[(6).]

On September 2014, India Newborn Action Plan (INAP) was launched, in order to reduce the newborn deaths and stillbirths in the country - with the goal of attaining 'Single Digit Neo-natal Mortality Rate (NMR) by 2030' and 'Single Digit Still Birth Rate (SBR) by 2030'. Currently, there are estimated 7.47 lakh neonatal deaths annually. The neo-natal deaths are expected to reduce to below 2.28 lakh annually by 2030.[(7)]

Infant mortality can be prevented and the neonatal mortality rate can be reduced by giving proper training to the health worker to give proper newborn care such as neonatal assessment, clearing the airway , cleaning of eyes , skin etc[4].

UNICEF has launched a global campaign called “every child alive” to demand and deliver solutions.. The goals of the campaign are training doctors and nurses in maternal & newborn care and providing adequate health facilities [4].

Simulation training is becoming an important integral part of surgical training in that it provides obvious advantages, particularly in the present climate of diminished clinical exposure. The ready availability of a simulation centre and the ability to practice at times that are convenient provide learners with an opportunity to develop and retain skills by engaging in regular practice to protect against skill decay. Shifting from real life training to simulation training also allows mentors to easily calibrate the degree of difficulty in the simulated environment as need be. Computer-based simulation training is by nature interactive, and as such, engages participants in an active learning process that is conducive to improved retention of information compared with the traditional passive-lecture format.[8]

Using simulations to deliver employee training is one of the most effective training methods available today. Employees who have a hands-on knowledge and use of equipment and tools have more confidence and mastery of needed job skills and fewer errors as well. Companies can realize reductions in overall training costs by implementing simulation training in their learning and development programs. Simulation training provides a virtual environment in which new apps, methods, or tools are introduced in a space that mimics real-life use. Often, simulation training is done digitally, with a virtual environment that mirrors actual work conditions, including background noise, effects, and simulated workspaces. Eight top benefits of training simulations were real-life experiences, immediate feedback, knowledge retention, cooperation and competition, no risks, quantifiable training, multiple uses, reduced costs and time.[9]

Simulation based training provides safe and effective care with the help of health care professionals. Real experiences with guided experiences, often immersive in nature, that evoke or replicate substantial aspects of the real world are provided by simulation. In order to educate healthcare providers in a broad range of clinical skills, simulation is used as a superior method. Simulation training will educate, train and sustain the personnel in providing safe clinical care. The benefits of simulation training are effective assessment tool

for performance and competency of individual clinicians and teams , effective adjunct to actual clinical practice , powerful assessment tool for research and evaluation, concerning organisational practices (patient care protocols) and for the investigation of human factors, efficient tool for changing the culture of healthcare to be more safety oriented, by training clinicians in practices that enact the desired ‘‘culture of safety’’ , facilitated exchange and collaboration between experienced clinicians and healthcare administrators and experts on human factors, organizational behavior, or institutional change [10]

Safe and effective care shall be provided through simulation. It gives the real experience for the staff nurses for performing the care to the newborn. In order to reduce the neonatal mortality, these type of training is necessary almost in every fields of nursing. In the field of paediatric nursing, the beginner stage belongs to neonates and thus the staff nurses are to be trained for providing efficient care to the newborn such as immediate newborn care, daily and routine care of newborn to reduce the morbidity and mortality rates among newborn.

Hence this study will be conducted with an aim to improve the knowledge and practice of staff nurses regarding newborn care and there by maternal and neonatal mortality rate can be reduced. The researcher will use simulation technique in order to educate the staff nurses related to newborn care and it includes, immediate newborn care at birth, breast feeding, Neotal assessment, neonatal resuscitation and routine care of newborn.

REVIEW OF LITERATURE

Dr. Malarvizhi (2017) conducted a quasi experimental study on Outcome of Clinical Simulation Neonatal Resuscitation in Development of Knowledge and Skill among Baccalaureate Nursing Students at a selected Nursing Institution. Eighty five students of B.Sc Nursing 3rd year were selected as participants in the study and they were selected by the non probability purposive sampling and the setting of the study was Simulation Lab, PSG IMSR, Coimbatore. Questionnaire on Neonatal Resuscitation Programme (NRP) was used to assess the student’s knowledge The students were educated on NRP through simulation after one group of pretest. Effectiveness of Neonatal Resuscitation Programme was assessed through

questionnaire and Objective Structured Clinical Examination (OSCE) conducted as a posttest regarding Student's knowledge and Psychomotor skill in performing Neonatal Resuscitation . Findings of the study were half of the nursing students 44 (52%) had inadequate knowledge, forty one nursing students (48%) had moderately adequate knowledge and none of them had adequate knowledge on neonatal resuscitation in pre test. There was a significant increase in post test skill of nursing students on various areas like Basic Life support, newborn not breathing. Skills of nursing students were improved through simulation technique. Simulation provided knowledge and skill to students [11].

Kathryn Rudd(2016) conducted a descriptive evaluation study on Impact of simulation on Nurse's satisfaction, confidence and communication in neonatal Resuscitation. Sixty one nurses in a tertiary hospital were included in the study and they were selected through non probability of purposive sampling. The findings of the study was 49% were confident in their resuscitation skills, 50% were satisfied with the simulation experience, and 47% reported communication needed to be improved for an effective resuscitation process. This project contributes to social change by demonstration of enhanced NRP training within a simulated environment will create a great social change and it will results in the integration of communication and teamwork skills essential to improve the process of neonatal resuscitation[12]

Pammi M(2016) conducted a study on Newborn Resuscitation Training Programmes Reduce Early Neonatal Mortality. To determine whether SFNRT programmes reduce neonatal mortality and morbidity, improve acquisition and retention of knowledge and skills, or change teamwork and resuscitation behaviour. CENTRAL, MEDLINE, PREMEDLINE, EMBASE, CINAHL, Web of Science and the Oxford Database of Perinatal Trials, ongoing trials and conference proceedings were searched in April 2015, and included randomised or quasi-randomised trials that reported at least one of our specified outcomes. SFNRT in low- and middle-income countries decreased early neonatal mortality [risk ratio (RR) 0.85 (95% CI 0.75-0.96)]; the number needed to treat for benefit [227 (95% CI 122-1,667; 3 studies, 66,162 participants, moderate-quality evidence)], and 28-day mortality [RR 0.55 (95% CI 0.33-0.91); 1 study, 3,355 participants, low-quality evidence]. Decreasing trends were noted for late neonatal mortality [RR 0.47 (95% CI 0.20-1.11)] and perinatal mortality [RR 0.94 (95% CI 0.87-1.00)], but there were no differences in fresh stillbirths [RR 1.05 (95% CI 0.93-1.20)]. Teamwork training with simulation increased the

frequency of teamwork behaviour [mean difference (MD) 2.41 (95% CI 1.72-3.11)] and decreased resuscitation duration [MD -149.54 (95% CI -214.73 to -84.34); low-quality evidence, 2 studies, 130 participants]. SFNRT (standardised formal neonatal resuscitation training) in low- and middle-income countries reduces early neonatal mortality, but its effects on birth asphyxia and neurodevelopment outcomes remain uncertain. Follow-up studies suggest normal neurodevelopment in resuscitation survivors [13]

Brenan Vail(2018) conducted a mixed method study on the power of practice: Simulation training improving the quality of neonatal resuscitation skills in Bihar. A total of 1342 mentees (88% of ANM and 12% of GNM) those who were working in PHC were randomly selected and simulation training was given regarding newborn resuscitation and their performance were evaluated. From early to later weeks of training, the percentages of deliveries in which mentees identification of non-vigorous neonates, suctioning and PPV went well increased. The training had positive impact among ANM and GNM Mentees working in rural PHC across Bihar. But ongoing improvement is necessary to combat the barriers to care.[14]

Joho AA (2015) conducted a quasi-experimental study on effectiveness of simulation based training for life saving skills to improve knowledge, skill and attitude of nurses on caring mothers and newborn. Totally 343 nurses working in the health centres were selected purposively. This study included three phases such as pre training assessment, training regarding lifesaving skills and post training assessment. This study aimed to compare the outcome with the baseline information and assess retention of knowledge and skills. This training would benefit many nurses. This study will provide stake holders with simulation training using low cost manqué to teach nurses and nursing students to gain knowledge, skills, and change of attitude on caring women with PPH and how to resuscitate babies.(15)

AIMS

To assess the effectiveness of simulation training on Knowledge and Practice regarding newborn care among staff nurses

OBJECTIVES

1. To assess the pre-test knowledge and practice regarding newborn care among staff nurses in experimental group
2. To assess the pre-test knowledge and practice regarding newborn care among staff nurses in control group
3. To determine the effectiveness of simulation training programme in terms of change in knowledge and practice regarding newborn care among staff nurses in experimental group
4. To compare the pretest and the posttest knowledge and practice regarding newborn care among staff nurses in control group

MATERIAL AND METHODS

1. **Study Design**

   It will be conducted as a non randomized control group study in the department of pediatrics and OBG ,Rohilkhand Medical college and Hospital and VarunArjun Medical college and hospital. Ethical committee clearance will be sought before commencing the study. Written informed consent will be taken from all the staff nurses included in the study

2. **Study duration.**

   The period of the study will be 12 months which will be used for collection of data, evaluation and presentation of finding.

3. **Sample size and Sampling technique**

   Complete enumeration method will be used for sample size. The sample size will be 60 in Experimental group and 60 in control group. Purposive sampling will be used as a sampling technique and who will fulfil the inclusion criteria will be enrolled for the study

4. **Study Population**

   Staff nurses working in NICU, PICU, Pediatric ward, Pediatric extension ward, Postnatal ward in Rohilkhand Medical College and Hospital(Experimental group) and VarunArjun Medical college and hospital (Control Group) will be included in the study

5. **Inclusion Criteria**

   a. Staff nurses willing to give informed consent

b. All the staff nurses working in NICU, PICU, Pediatric ward, Pediatric extension ward, Postnatal ward

6. Exclusion Criteria

a. Staff nurses working who is not available on the time of study

b. Staff nurses who is not willing to give the informed consent

c. Who received training on Newborn care within six months

7. Data collection technique and Tools

Data will be collected regarding knowledge and practices of newborn care. A structured questionnaire will be used to assess the knowledge and check list will be used to assess the practice before and after simulation training regarding newborn care in the experimental group. And the same will be done in control group without simulation training

a. Structured Knowledge questionnaire reading newborn care

(1) Introduction to Newborn Care

(2) Immediate newborn care

(3) Later and Routine care of newborn

b. Checklist regarding practice of newborn care

(1) Immediate newborn care

(2) Later and Routine care of newborn

c. Simulation training regarding newborn care

(1) Immediate newborn care

1. Deliver the baby on a warm and clean towel
2. Establish and maintain a patent airway- If Not, Neonatal Resuscitation
3. Ensure warmth
4. Newborn assessment – APGAR score

5. Care of eyes
6. Clamp and cut the cord
7. Care of the skin
8. Administration of Vitamin K
9. Identification of Baby
10. Transfer of the baby according to the level of care

(2) Later and Routine care of newborn

1. Rooming in
2. Initiate feeding
3. Observation of early sign of diseases
4. Prevention of infections
5. Care of bladder and bowel
6. Maintenance of personal hygiene
7. Parental teaching and follow up
8. Assessment - Transitional assessment, Periodic, Anthropometric, Head to Toe examination, Neurological assessment, Assessment of reflexes, gestational assessment,

8. Data Evaluation

Suitable statistical evaluation will be done using SPSS version 23. The result will be displayed with the help of table and graphs

S.No	Objective	Data collection	Data analysis
1	To assess the pre-test	1.Knoweledge will be	1.Knowledge score key

	test knowledge and practice regarding newborn care among staff nurses in experimental group	assessed by structured questionnaire regarding newborn care 2.OSCE checklist will be used to assess the practice of staff nurses regarding newborn care	0-30-Poor Knowledge 31-70-Better Knowledge 71-100-Good Knowledge 2. OSCE Practice score key Yes- 1 No- 0 0-10 – Poor practice 11-20 – Better practice 21-30 – Good practice
2	To assess the pre-test test knowledge and practice regarding newborn care among staff nurses in control group	1.Knoweledge will be assessed by structured questionnaire regarding newborn care 2. OSCE checklist will be used to assess the practice of staff nurses regarding newborn care	1.Knowledge score key 0-30-Poor Knowledge 31-70-Better Knowledge 71-100-Good Knowledge 2. OSCE Practice score key Yes- 1 No- 0 0-10 – Poor practice 11-20 – Better practice 21-30 – Good practice
3	To determine the	1. Post test knowledge	1.Knowledge score key

	effectiveness of simulation training programme in terms of change in knowledge and practice regarding newborn care among staff nurses in experimental group	score regarding newborn care in the experimental group will be assessed 2. Post test OSCE practice score regarding newborn care in the experimental group will be assessed	0-30-Poor Knowledge 31-70-Better Knowledge 71-100-Good Knowledge 2. OSCE Practice score key Yes- 1 No- 0 0-10 – Poor practice 11-20 – Better practice 21-30 – Good practice
4	To compare the pretest and the posttest knowledge and practice regarding newborn care among staff nurses in control group	1.Pretest and Post test knowledge score regarding newborn care in the control group will be compared 2. Pretest and Post test OSCE practice score regarding newborn care in the control group will be compared	1.Paired T test will be used to compare the Pretest and Post test knowledge score regarding newborn care 2.Paired T test will be used to compare the Pretest and Post test OSCE practice score regarding newborn care

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SECTION B :- Knowledge Questionnaire

I team No:	Not Relevant	Relevant to some extent	Relevant	Remark
1				
2				
3				
4				
5				
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24				
25				
26				
27				
28				
29				
30				

General Comments_____

_____

Date: **Signature of Experts**

SECTION C :- Check List

I team No:	Not Relevant	Relevant to some extent	Relevant	Remark
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
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19				
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22				
23				
24				
25				
26				
27				
28				
29				
30				

General Comments _____

_____

Date:

Signature of Experts

Place:

Name of Designation

ANNEXURE – B

LETTER SEEKING EXPERT'S OPINION AND SUGGESTION FOR THE CONTENT VALIDATY OF THE TOOL

From,

_____

_____

_____

_____

To,

_____

_____

Respected Sir/Madam

Subject:- Request for expert opinion and suggestion to establish content validity of the research tool.

I_____ Phd scholar, Faculty of Nursing have undertaken a research project work on

_____

_____

_____

_____Which to be submitted to Bareilly International University, Bareilly for Partial fulfillment of Phd in Nursing.

I humbly request you to go through the content and give your valuable suggestions and opinion.

Thanking you

Yours Obediently

_____

ANNEXURE – B

LETTER SEEKING EXPERT'S OPINION AND SUGGESTION FOR THE CONTENT VALIDATY OF THE TOOL

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To,

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_____Which to be submitted to Bareilly International University, Bareilly for Partial fulfillment of Phd in Nursing.

I humbly request you to go through the content and give your valuable suggestions and opinion.

Thanking you

Yours Obediently

_____

CONSENT FORM

Dear Participant,

I _____ Phd scholar, as a part of partial fulfillment of the requirement for the degree of Phd in Nursing , I am interested to conduct a study on the topic "

_____

_____

_____"

I request your kind Co-operation and active participation. I am sure that the information provided will be kept confidential and is used for the study purpose only. Kindly give your consent for the same.

Thanking You

Yours Faithfully

_____

( )

I am willing to participate in the study and I am aware that the information provided will be kept confidential and is used for the study purpose only.

Place:

Signature of Participant

INDEX

S. No	Index	Page No
1	Module on Newborn Care	1-87
2	Questionnaire on Newborn care	1-14
3	OSCE Check List on Newborn care	1-12

MODULE
ON
NEWBORN CARE

SIMULATION TRAINING MODULE

ON

NEWBORN CARE

Supervisor

Dr. Prema P

Ph D Guide

BIU

Prepared by

Mrs. Prathiba Manoharam.B

Ph D Scholar

BIU

INDEX

Sr.No	Content	Sub Content	Page Number
1	**Introduction to newborn care**	1. Introduction 2. Definition 3. Purposes of newborn care	1
2.	**Scenario 1** Immediate care at birth	1. Introduction 2. Definition 3. Delivery of the baby on a warm and clean towel 4. Establish and maintain a patent airway 5. Ensure warmth 6. Assessment and documentation of baby's condition 7. Care of Eyes 8. Clamp the cord and cut the cord 9. Care of skin 10. Administration of vitamin K 11. Identification of baby 12.Transfer of the baby according to the level of care required	2-11
3	**Scenario 2** Breast feeding	1. Introduction 2. Definition 3. Physiology of lactation 4. Types of breast milk 5. Composition of breast milk 6. Initiation of breast milk 7. Techniques of breast feeding- Position and latching 8. Benefits of breast feeding-baby, Mother 9. Exclusive breast feeding 10. Factors inhibiting breast feeding 11.Breast milk expression and storage guidelines	**12-29**
4.	**Scenario 3** Neonatal examination	1. Introduction 2. Definition 3. General examination 4. Anthropometric assessment 5. Head to toe examination 6. Neurological examination 7. Assessment of reflexes 8. Estimation of gestational age	**30-39**

5.	**Scenario 4** Neonatal resuscitation	1. Introduction	**40-45**
		2. Definition	
		3. TABC of Resuscitation	
		4. Neonatal supplies and equipment	
		5. Steps of resuscitation	
		6. Maintain circulation	
6	**Scenario 5** Routine care of newborn	1. Introduction	**45-86**
		2. Definition	
		3. Safe and thermo neutral environment	
		4. Bathing	
		5. Rooming in	
		6. Feeding	
		7. Cord care	
		8. Personal hygiene	
		9. Vital signs	
		10. Immunization	
		11. Observation of early signs of diseases	
		12. Prevention of infections	
		13. Care of bowel and bladder	
		14. Safety of newborn	
		15. Parental teaching and follow up	
7.	**Summary**	Summary of newborn care	**86**
8	**Reference**	Reference	**87**

INTRODUCTION

Newborn care is a care ap1plied immediately after the baby is born and continued for at least the first 7 days after birth ·It is to assist the newborn in adaptation to the extra uterine environment .Immediate newborn care includes clear of the airway, APGAR score , care of the cord, care of the eyes, care of skin, body temperature maintenance , breast feeding initiation and establishment**.**

DEFINITION

Newborn- A child recently born

Newborn care- Newborn care is a care applied immediately after the baby is born and continued for at least the first 7 days after birth

PURPOSE OF NEWBORN CARE

1. To identify the newborn's abnormalities and problems in adapting to life outside the uterus
2. Evaluate and monitor the newborn system-by-system for normal versus abnormal functioning, providing maintenance of normal and potential treatment of abnormal findings
3. To determine the assessment of the infants behavior helps determine intactness of the central nervous system and provides information about the infant's ability to respond to care taking activities.
4. Promotion of early maternal-infant attachment
5. Provide a safe environment at all times.

SCENARIO OF SIMUALTION TRAINING ON NEWBORN CARE

Scenario 1 : Immediate care at Birth

Scenario 2 : Breast Feeding

Scenario 3 : Neonatal examination

Section 4 : Neonatal resuscitation

Section 5 : Routine care of Newborn

Scenario 1 : Immediate care at Birth

1. Introduction
2. Definition
3. Delivery of the baby on a warm and clean towel
4. Establish and maintain a patent airway
5. Ensure warmth
6. Assessment and documentation of baby's condition
7. Care of Eyes
8. Clamp the cord and cut the cord
9. Care of skin
10. Administration of vitamin K
11. Identification of baby
12. Transfer of the baby according to the level of care required

Scenario 2 : Breast Feeding

1. Introduction
2. Definition
3. Physiology of lactation
4. Types of breast milk
5. Composition of breast milk

6. Initiation of breast milk
7. Techniques of breast feeding- Position and latching
8. Benefits of breast feeding-baby, Mother
9. Exclusive breast feeding
10. Factors inhibiting breast feeding
11. Breast milk expression and storage guidelines

Scenario 3 : Neonatal examination

1. Introduction
2. Definition
3. General examination
4. Anthropometric assessment
5. Head to toe examination
6. Neurological examination
7. Assessment of reflexes
8. Estimation of gestational age

Section 4 :Neonatal resuscitation

1. Introduction
2. Definition
3. TABC of Resuscitation
4. Neonatal supplies and equipment
5. Steps of resuscitation
6. Maintain circulation

Section 5 :Routine care of Newborn

1. Introduction
2. Definition
3. Safe and thermo neutral environment
4. Bathing

5. Rooming in
6. Feeding
7. Cord care
8. Personal hygiene
9. Vital signs
10. Immunization
11. Observation of early signs of diseases
12. Prevention of infections
13. Care of bowel and bladder
14. Safety of newborn
15. Parental teaching and follow up

SCENARIO 1 : IMMEDIATE CARE AT BIRTH

1. Introduction
2. Definition
3. Delivery of the baby on a warm and clean towel
4. Establish and maintain a patent airway
5. Ensure warmth
6. Assessment and documentation of baby's condition
7. Care of Eyes
8. Clamp the cord and cut the cord
9. Care of skin
10. Administration of vitamin K
11. Identification of baby
12. Transfer of the baby according to the level of care required

1.INTRODUCTION

Immediate care of a newborn following delivery is a must. There are a lot of things that go into the care of the child when just born the breathing of the child, sleeping, baby's first breath and more. Here are some of the most immediate requirements that you need to take care of as soon as your baby is born.

2.DEFINITION

The care given to the newborn baby immediately after birth.

3.DELIVERY OF THE BABY ON A WARM AND CLEAN TOWEL

- The baby should be delivered on to a warm clean towel and kept on the mother's abdomen or chest.

- If this is not possible, the baby should be kept in a clean, warm, safe place close to the mother.

- Immediately dry baby the baby but if secretions are present suction first and then dry (this will prevent aspiration as drying itself is stimulation for a baby to breath).

- Blood or meconium on the baby's skin should be wiped away; however, the white greasy substance covering the baby's body (vernix) should not be wiped off.

- Because this vernix helps to protect the baby's skin and gets reabsorbed within few hours .

4.ESTABLISH AND MAINTAIN A PATENT AIRWAY

- The neonate cries spontaneously at birth.
- During crying the secretions of mouth and nose are suctioned to clear the airway of mucous and amniotic fluid.
- If the baby is not crying, gentle tactile stimulation is provided. If the child does not cry even after stimulation, CPR should be given.
- Suction of baby's mouth and nose should be done using a bulb syringe or mucous trap
- Gentle suction should be done to prevent bradycardia, laryngospasm and cardiac arrhythmias from vagal stimulation.

5.ENSURE WARMTH

- In neonates, the heat regulating mechanism is immature.
- The neonate loses heat due to evaporation, radiation, conduction and convection.
- To prevent heat loss from the baby following step should be taken:

  - The delivery room should be warm, with temperature of 25' -28

- Dry the infant thoroughly soon after birth using a warm towel.

- Place the baby under radiant warmer or over the mother's chest in skin to skin contact with her

6.ASSESSMENT AND DOCUMENTATION OF BABY'S CONDITION

The Apgar score is a test given to newborns soon after birth. This test checks a baby's heart rate, muscle tone, and other signs to see if extra medical care or emergency care is needed.

The test is usually given twice: once at 1 minute after birth, and again at 5 minutes after birth. Sometimes, if there are concerns about the baby's condition, the test may be given again.

In the test, five things are used to check a baby's health. Each is scored on a scale of 0 to 2, with 2 being the best score:

1. **A**ppearance (skin color)
2. **P**ulse (heart rate)
3. **G**rimace response (reflexes)
4. **A**ctivity (muscle tone)
5. **R**espiration (breathing rate and effort)

APGAR SCORING SYSTEM

	0 Points	1 Point	2 Points	Points totaled
Activity (muscle tone)	Absent	Arms and legs flexed	Active movement	
Pulse	Absent	Below 100 bpm	Over 100 bpm	
Grimace (reflex irritability)	Flaccid	Some flexion of Extremities	Active motion (sneeze, cough, pull away)	
Appearance (skin color)	Blue, pale	Body pink, Extremities blue	Completely pink	
Respiration	Absent	Slow, irregular	Vigorous cry	

Severely depressed	0-3
Moderately depressed	4-6
Excellent condition	7-10

7.CARE OF EYES

- The eyes of the neonate are cleaned as soon as the head is delivered using sterile cotton swabs dipped in sterile water.
- The eyes are cleaned from inner canthus to outer canthus with separate swabs for each eye.

Thereafter medicated eye drops should be instilled to protect baby's eyes from bacterial infections that may be contracted during delivery

Eye care

Do's:

- Clean eyes immediately after birth with swabs soaked in warm sterile water using separate swabs for each eye. Clean from medial to lateral side
- Give prophylactic eye drops within 1 hour of birth as per hospital policy

Don'ts:

- Do not apply anything else (e.g. Kajal) in the eyes
-

8.CLAMP THE CORD AND CUT THE CORD

- The umbilical cord is clamped when the cord pulsation stops as this provides the infant with extra blood from the placenta.
- The cord is clamped with two clamps and then cut between the clamps leaving about 1" or 5 cm from abdomen of baby.
- The stump is left without any dressing and it is inspected repeatedly for any bleeding for upto 24 hours.
- It isinflammation and discharge till it falls off

9.CARE OF SKIN

- The newborn's skin is delicate so it should be gently wiped off blood, mucous and secretions.
- No attempt should be made to rub off the protective vernix caseosa.
- The areas with folds such as neck, axillae, groins and creases at joints require special attention.
- The practice of giving bath to the baby at the time of birth increases the risk of hypothermia so bathing should be postponed for 48-72 hours or more after birth depending on baby's condition

10.ADMINISTRATION OF VITAMIN K

- For a few days after birth, the new born is unable to synthesize vitamin k that is needed for blood clotting so there is a potential problem of abnormal bleeding.

- Therefore 1mg vitamin K is administered to the baby intramuscularly

11.IDENTIFICATION OF BABY

- Before the baby is transferred from the labor room, an identification band placed to baby's wrist, specifying the name of mother, registration number, date and time of birth and baby's sex.

- Also foot impression of baby is taken for baby's identification.

- It is important to provide mother an opportunity to see and touch the baby and note the sex before transferring the baby to the observed routinely for any redness nursery.

12.TRANSFER OF THE BABY ACCORDING TO THE LEVEL OF CARE REQUIRED

- Transfer: All the normal babies are transferred to the mother and nursed along with her in
  post natal area. This is called rooming in .

- Breast feeding should be started within half an hour of birth, however sick or at risk neonates should be transferred to a Neonate Intensive Care Unit (NICU)

Level II Nursery:

Preterm babies with

1) Gestational age between 32-30 weeks

2) Low birth(1500 2000gm)

3) major congenital malformation or

4) Suspected of having aspirated meconium should be transferred to special care nursery.

Level III Nursery:

The flowing categories of neonates should be admitted to Intensive Care Nursery

1) Birth weight less than 1.5kg

2) Gestational Period less than 32 weeks

3)Neonate with respiratory distress

4) Infants with convulsions, central cyanosis (Congenital heart disease), severe Neonate (erythroblasto foetalis) ant those requiring major surgery

SCENARIO 2 : BREAST FEEDING

1. Introduction
2. Definition
3. Physiology of lactation
4. Types of breast milk
5. Composition of breast milk
6. Initiation of breast milk
7. Techniques of breast feeding- Position and latching
8. Benefits of breast feeding-
9. Exclusive breast feeding
10. Factors inhibiting breast feeding
11. Breast milk expression and storage guidelines

1.INTRODUCTION

Breast milk is wholesome food for the baby. Breast feeding is the most effective way to provide baby with a caring environment and complete nutrition. It meets the nutritional as well as emotional needs of the baby. UNICEF and WHO recommends exclusive breastfeeding to babies until six months of age.

2.DEFINITION

Breastfeeding: Feeding a child human breast milk.

Exclusive breastfeeding is ideal nutrition and it is sufficient to support optimal growth and development for the first 6 months after birth, according to the American Academy of Pediatrics

3.PHYSIOLOGY OF LACTATION

Human milk is produced due to interaction between hormones and reflexes. During pregnancy glandular tissue of breast is stimulated to produce milk due to hormones oxytocin and prolactin also two reflexes mediated by these hormones come into play.

1. **Milk Secretion Reflex** (Prolactin Reflex): Prolactin in produced by anterior pituitary gland is responsible for milk secretion by alveolar cells of breast. When the baby sucks, the nerve endings in the nipple carry message to anterior pituitary which in turn releases prolactin. This cycle from stimulation to secretion is called milk secretion reflex or prolactin reflex or prolactin reflex.

2. **Milk ejection Reflex** (0xytocin Reflex): Oxytocin produced by posterior pituitary is responsible f contraction of breast tissue leading to ejection of milk from the gland into the lactiferous sinuses anc ducts. This hormone is produced in response to stimulation of nerve endings in the

nipple by sucking as well as by the thought, sight or sound of the baby. Since ths reflex affected by mother's emotions, a related and confident attitude helps in "milk ejection".

4.TYPES OF BREAST MILK

The composition of breast milk varies at different stages of post natal period, to suit the reeds of the baby

1.Colostrum : it is the milk secreted during the first three days after delivery, It is thick and yellow in color and rich in antibodies and Vitamin A,D,E and K.

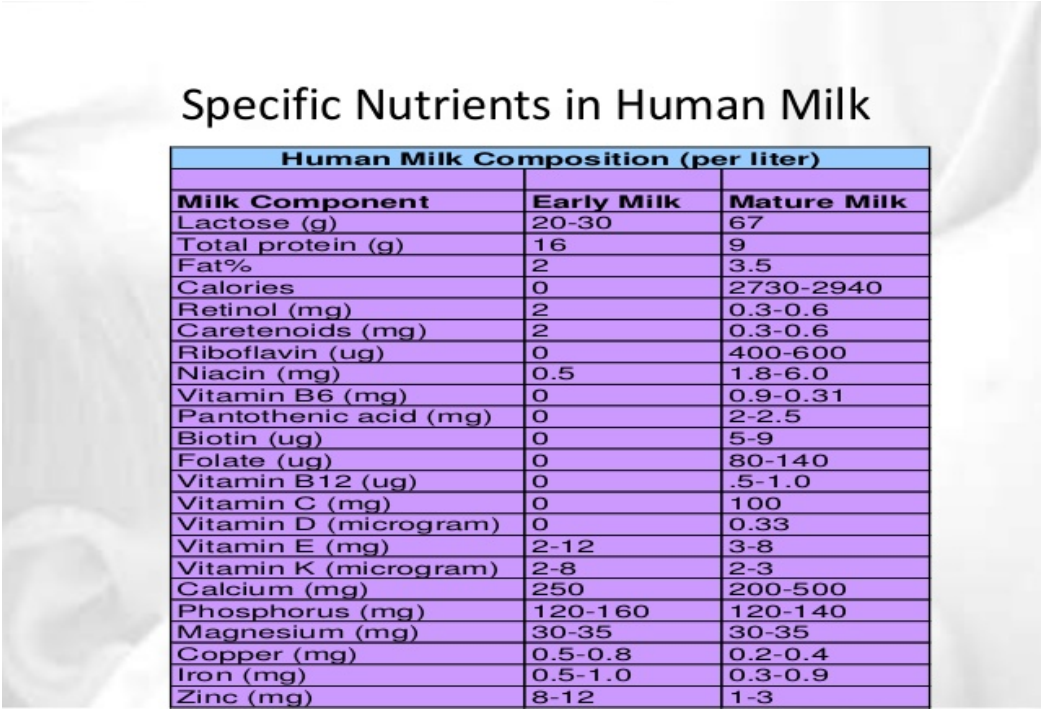
2.Transitional Milk : It is the milk secreted during the next two weeks. The immunoglobulin and protein content decreases while fat and sugar increases.

3.Mature Milk: İt follows transitional milk it is thinner and watery but has all nutrients for optimum growth of baby.

4. Fore Milk: It is the milk secreted at the start of a feed. It is rich in proteins, sugar, vitamins and water.

5.Hind Milk: It comes later, towards the end of a feed and is rich in fat and energy and satisfies the baby's hunger.

5. COMPOSITION OF BREAST MILK



Human Milk Composition (per liter)		
Milk Component	**Early Milk**	**Mature Milk**
Lactose (g)	20-30	67
Total protein (g)	16	9
Fat%	2	3.5
Calories	0	2730-2940
Retinol (mg)	2	0.3-0.6
Caretenoids (mg)	2	0.3-0.6
Riboflavin (ug)	0	400-600
Niacin (mg)	0.5	1.8-6.0
Vitamin B6 (mg)	0	0.9-0.31
Pantothenic acid (mg)	0	2-2.5
Biotin (ug)	0	5-9
Folate (ug)	0	80-140
Vitamin B12 (ug)	0	.5-1.0
Vitamin C (mg)	0	100
Vitamin D (microgram)	0	0.33
Vitamin E (mg)	2-12	3-8
Vitamin K (microgram)	2-8	2-3
Calcium (mg)	250	200-500
Phosphorus (mg)	120-160	120-140
Magnesium (mg)	30-35	30-35
Copper (mg)	0.5-0.8	0.2-0.4
Iron (mg)	0.5-1.0	0.3-0.9
Zinc (mg)	8-12	1-3

6.INITIATION OF BREAST FEEDING

Breast feeding should be started within first half an hour to one hour of birth or as soon as possible after normal delivery whereas in case of ceasarean delivery ,within 4 hours. Rooming- in and bedding-in should be done with mother and baby to prevent separation and promote breast feeding.

7.TECHNIQUE OF BREAST FEEDING

Initially the mother needs help in breast feeding.

7.1 . Position of mother and baby

- There is no "one" right way to breastfeed. Choose the position(s) that work best for mother and baby.

  Regardless of the position that is to be used, it is important to keep baby's head, shoulders and hips in a straight line. The correct positioning is tummy-to-tummy and nose-to-nipple.

  It is also important to keep baby to the mother's breast rather than mother's breast to baby. This will prevent the mother from getting a sore back from leaning over.

  Here are some positions:

  Laid-back hold

  - Mother should Lie on the back, supported by pillows.
  - Mother should position the baby tummy to her tummy.
  - **Cross-cradle hold**

  - Position the baby so that the baby tummy is kept parallel to mother tummy and baby

is lying across mother lap.

- Support baby back with mother forearm and hold the base of baby head in mother hand.
- The mother will hold her breast with her free hand until the baby latch on her nipple.
- Mother need to hold her breast with breast for the entire feeding.
- When the baby starts to nurse, mother may want to switch her arms to the cradle hold position.

Football hold

- Place a pillow or two at mother side to support her arm and raise baby to breast level.
- Support mother back with mother forearm and mother hand will hold the base of baby head and neck.
- Mother should use her forearm to hold baby tummy against her side
- Mother should hold her breast with her free hand

Lying-down hold

- Mother should lie on her side with pillows supporting her back.
- She should bend the knee of her top leg so that baby will comfortably turned on her

side.

- Place baby on side, facing mother .
- Baby should be close to mother with her face at breast level.

Cradle hold

This works best for babies who are latching well.

- Place a pillow or two in mother lap to support baby and get her to breast level.
- Place baby head on the crook of mother arm.
- Keep mother elbow close to her body to help baby to keep chin up.
- Turn baby tummy and hips to face mother. Don't have baby rest on its back and just turn babyhead.

Note

* Head and body of baby should be straight.

* The baby's nose should be opposite to the nipple.

* Baby's body should be close to her body

*.Whole body of the baby must be supported

7.2. Latching or attachment of baby to the breast.

After proper positioning, the baby's check is touched with the nipple. Due to rooting reflex, baby quickly turns his face towards the breast and starts sucking. The baby sucks, pauses and suckles again.

Signs of Good attachment

* Baby's mouth is wide open.
* Baby's chin touches the breast.
* Much of the areola is not visible as it is in the baby's mouth
*Baby's cheeks are full and not hollow

Signs of Poor Attachment

* Only the nipple is in the baby's mouth not the areola.
* The baby's tongue is back inside his mouth and cannot reach the ducts to press on them.
* Suckling with poor attachment may be uncomfortable or painful for the mother.

7.3ABCs of Breastfeeding

- **A = Awareness**. Watch for your baby's signs of hunger, and breastfeed whenever your baby is hungry. This is called "on demand" feeding. The first few weeks, you may be nursing eight to 12 times every 24 hours. Hungry infants move their hands toward their mouths, make sucking noises or mouth movements, or move toward your breast. Don't wait for your baby to cry. That's a sign he's too hungry.

- **B = Be patient**. Breastfeed as long as your baby wants to nurse each time. Don't hurry your infant through feedings. Infants typically breastfeed for 10 to 20 minutes on each breast.

- **C = Comfort**. This is key. Relax while breastfeeding, and your milk is more likely to "let down" and flow. Get yourself comfortable with pillows as needed to support your arms, head, and neck, and a footrest to support your feet and legs before you begin to breastfeed.

8.ADVANTAGES OF BREAST FEEDING

Breast feeding is ideal for the neonates. It has several advantages both for the baby and mother

8.1. Advantages for baby

1. It is a wholesome food for the baby as it contains all the nutrients that a baby needs in first 6 months of life for optimum growth and development.

Proteins: Human milk has low protein (0.7gm/dl) than cow's milk (3.5g/dl) which lowers the solute load on kidneys of baby. Also human milk protein mainly (lactalbumin) is more easily digested than cow's milk protein (Casein).

Fat: Higher content of mono unsaturated fatty acids especially linoleic acid in human milk promotes brain growth and protects individuals from atherosclerosis in later life

Minerals: Human milk contains a smaller but more balanced proportion of calcium and phosphorous as compared to cow's milk.

1. **Lowers Risk of Infection**
   Human milk contains high level of lysozyme and lgA which offers protection to the baby against several viral and bacterial diseases. Breast milk especially colostrum contains numerous host defense factors like macrophages, granulocytes, T and B lymphocytes.
   Lactoferrin present in breast milk protects the baby from enteric infections. Para-amino-benzoic acid (PABA) present in breast milk protects the baby from malaria.

3.Protects From Allergy

Higher concentration of secretary IgA in breast milk lowers the risk of milk allergy to the baby so it is the safe food for the baby

4 Therapeutic Effect

Breast feeding protects the baby from E. coli infection due to high levels of bifidus factor in the Lactoferrin present in breast milk protects the baby from enteric infections. It protects the baby from neonatal hypocalcaemia and tetany (due to its ideal calcium and phosphorous ratio. Also, exclusively breast fed infants are at lower risk of developing diabetes mellitus,childhood lymphomas, liver diseases and bronchial asthma later in life.

5. **Physiological Adaptation**

Mother's milk is very suitable for the baby. Milk of mother who has delivered a preterm baby is different from milk of term baby's mother. Preterm mother's milk contains more energy, protein, fat, sodium, zinc, anti-infective factors and macrophages and has lower lactose, calcium and phosphorous content.

6**.Economic factors:**

Breast milk is available free of cost for the baby. Also it is safe and free from any contamination so there is no risk of infection to the baby. This ultimately reduces the cost of hospitalization and economic burden of illness on family

7**. Emotional Bonding**

Breast feeding promotes emotional and physical bonding between the mother and the baby.This leads to better child and mother relationship and fewer behavioral problems in children.

8.2Advantages of mother

1. Lactation suppresses ovulation in mothers who give exclusive breast feeding to their infants and serves as a natural contraceptive.

2. Breast feeding lowers the risk of ovarian and breast cancer

3. Breast feeding is convenient for the mother as she is not required to clean the bottle and prepare milk whenever she feeds the baby

4. Breast feeding the baby helps mother lose extra weight that she had put during pregnancy mother in shape after delivery.

8.3Benefits for baby

- Breast milk is always in the right temperature.
- Breast milk is always available.
- Breast milk digests quickly, it is designed for babies.
- The first breast milk is the colostrum, the perfect first food.

8.4Benefits for mother

- Breastfeeding bonds mother to her child.
- Breastfeeding soothe baby better than anything else.
- Breastfeeding mothers lose more weight than non breastfeeding moms.
- Nights are easier, especially if the baby sleeps next to mother
- No need to sterilize bottles and prepare formula, it saves precious time.
- Breastfeeding makes travelling easy.

8.5Benefits for families

- Breast milk is free, it saves money.

- Breastfeeding forces mother to take a break from hectic lifestyle. It enables her to enjoy the golden moments asher baby grows up fast.

- Exposure to breastfeeding help siblings become future breastfeeding mothers or supportive partner.

8.6Benefits for environment

- Breastfeeding helps the environment by not using packages and process.

8.7Benefits for society

- Breastfed babies are healthier babies, thus their mothers who work outside are likely to miss fewer days.

8.8 Health benefits

Today many studies provide evidences for the health benefits to infants and mothers.

- By breastfeeding, immunities passed from mother to baby to help fight viruses and illnesses.

- Breastfeeding might protect babies from developing diabetes.

- Breast milk can help prevent some food allergies.

- Breastfed babies are less likely to develop childhood asthma.

- Breast milk can help prevent ear infections.

- Breast milk increases protection from childhood leukemia and lymphoma.

- Breastfed babies grow up to be leaner than bottle fed babies.

- Studies show that breastfed infants have higher IQs than bottle fed infants.

- Breastfeeding might reduce risk of Breast Cancer, Ovarian cancer, Osteoporosis and now it might lower the risk of developing diabetes.

- Breastfeeding seems to have a protective effect against certain risk factors of cardiovascular disease.

9.EXCLUSIVE BREAST FEEDING

Definition :Exclusive breast feeding means feeding baby with breast milk soon after birth and continuing it 6 months without giving baby any other food. The baby is given only breast milk and nothing whenever the baby is hungry.

9.1Tips for Exclusive Breastfeeding

- Breastfeeding should be initiated within one hour of the baby being born.
- Exclusive breastfeeding for 6 months is ideal.
- The baby should only be given breast milk and nothing else, not even water.
- Breastfeeding should be done as and when the baby demands.
- Breastfeeding should be made possible by the mother even at night, co-sleeping can help to achieve this.
- Nipple confusion should be avoided by not using artificial nipples etc.
- It is advisable for the mother to read and learn about potential problems with breastfeeding.

- Medical staff, caregivers and hospital authorities should be informed about the decision of exclusive breastfeeding.
- Working moms can use expressed breast milk.
- Breastfeeding support groups can be very helpful for exclusive breastfeeding.

10.FACTORS INHIBITING BREAST FEEDING:

The following factors may inhibit breast feeding

1. **Psychological Factors**

Shock, strong pain, anger, anxiety or worry can affect let down reflex.
so the mother shoud be encouraged and supported to be calm, relaxed and have a positive attitude while breast feeding.

2.**Early Breast Engorgement**

During and immediately after delivery, breast may be felt full and uncomfortable. Some mother get hard, engorged and painful breast which makes feeding the baby difficult. This problem can be solved by application of warm compress to breast and then expressing excess milk

2. **Flat and Inverted Nipples**

If the nipples are flat, it is difficult for the baby to get hold of nipple and pull it into the mouth so sucking is interrupted. To overcome this, the flat or inverted nipple may be pulled outward with fingers to stimulate erection. After erection of nipple, baby can be gently put to breast.If not successful, nipple shield may be used

4. **Sore Nipple**

Nipples may be sore because of faulty sucking technique such as baby taking an insufficient amount of areola into mouth while feeding. Nipples may become sore due to long periods of vigorous sucking, sucking in bad position, engorged breast and oral thrush of baby. This can be prevented by teaching the mother about proper breast feeding technique during antenatal period. Mothers should decrease the length of

feeding and increase the frequency of feeding, Also mothers should avoid the use of soap on breast as it causes drying. Any emollient like vaseline or edible oil should be applied on the nipples after feeding the baby.

11.EXPRESSING AND STORING BREASTMILK

- Milk can be released by hand (manually) or with a breast pump. This is called expressing. There may be times where milk has to be expressed. This can happen when mother miss a feeding, baby takes a bottle feed, or mother breasts are engorged.

  The milk can be saved for a later feeding.

11.1Hand expressing breastmilk

To express breastmilk:

- Wash hands.
- Help milk let down by first massaging or stroking mother breast Avoid sliding hand over her breast down to the nipple. This can cause skin irritation.
- Place hand on breast with fingers one to one and a half inches behind the nipple.
- Push straight back into the chest wall without spreading fingers. If breasts are large, lift breast and then push .
- Gently compress (squeeze) the areola in one motion. Do not pull nipple out.
- Repeat in a rhythm: position fingers, push in, compress and release. Position, push in, compress and release.
- Expressing should be comfortable.
- When no longer milk is not coming, rotate thumb and fingers.
- Switch back and forth from breast to breast.
- Collect the breastmilk in a clean cup, spoon or other clean container (see photo D).

A: Position for massage. **B:** How to place hand. **C:** Gently push straight back. **D:** Gently compress then

collect the breastmilk.

All photos © Allina Health System

11.2Expressing milk with a breast pump

Not every woman needs a breast pump. It depends on situation and lifestyle.

Not all pumps are created equal. Breast pumps vary a lot in quality and effectiveness. Choose a high-quality pump.

Using a breast pump should never cause pain. If pain persist, stop using the pump

Before start pumping, wash hands well. Sit comfortably and take a few slow relaxing breaths. Massage breasts to help milk let down. Pump breasts according to the pump's directions.

It is important that any part of the pump that comes in contact with the breast, milk, or collection containers be very clean.

Wash them in hot, soapy water.

Rinse and air dry them on a clean towel.

11.3Storing breastmilk

Breastmilk can be safely kept in the refrigerator or freezer. There are different styles of containers for storing breastmilk: special plastic bags, bottles and glass containers.

Be sure to wash the milk containers in hot, soapy water. Rinse them and let them air dry. Wash hand well before touching breasts and clean milk containers.

11.4How to store fresh breastmilk:

- Write the date on the container.
- Pour the pumped milk into the container.
- Freshly pumped breastmilk can be kept at room temperature for up to four hours.
- You can collect small amounts of milk during the day and keep it in the refrigerator.

11.5How to store frozen breastmilk:

- Write the date on the container.
- Pour the pumped milk into the container.
- Freeze milk in two- to four-ounce portions. This is about what a newborn takes during a feeding. This portion also thaws quickly in warm water.
- If using special plastic bags, fill about three-quarters full. Leave space at the top of the bag to allow the frozen milk to expand.
- Fold the top of the plastic bag over several times and seal with freezer or masking tape, or a twist tie.
- Put the plastic storage bags into a larger plastic bag.

11.6Breastmilk storage guidelines

Where to store	Temperature	How long to keep	How to store
Room temperature	○ 50 to 85 F ○ 10 to 29 C	○ Up to four hours is best, especially at higher room temperatures ○ Up to eight hours at cooler room temperatures	○ Keep containers covered and as cool as possible.
Insulated cooler bag with ice pack	○ 59 F or cooler ○ 15 C or	○ 24 hours	○ Make sure that an ice pack touches

	cooler		the milk containers at all times. ○ Limit the number of times you open the cooler bag.
Refrigerator	○ 39 F or cooler ○ 4 C or cooler	○ Up to 72 hours (three days) is best ○ Up to eight days is OK if your refrigerator is very clean	○ Keep the milk containers in the back of the main part of the refrigerator (not in the doors).
Freezer (compartment of a refrigerator with separate doors)	○ 0 F or cooler ○ -18 C or cooler	○ Up to six months	○ Keep the milk containers in the back or the bottom of the freezer.
Upright or chest deep freeze	○ -4 F or cooler ○ -20 C or cooler	○ Up to 12 months	○ When milk is stored for longer times, the fats (lipids) will start to break down. ○ The milk is still safe, but

			the milk quality can be lower.

Guidelines based on the ABM Clinical Protocol #8 Human Milk Storage for Home Use for Full-Term Infants 2010.

11.7How to warm breastmilk from the refrigerator

- Put the container of milk in a bowl of warm tap water or warm it under warm running water.
- Gently shake the milk.
- Test the temperature by shaking out some milk on wrist. It is normal for the milk to separate into a milk and a cream layer.
- **Warning:** Don't bring the milk to the boiling point. Don't warm milk in the microwave. This can create "hot spots" that can burn baby.

11.8How to thaw frozen breastmilk

You may thaw frozen breastmilk one of two ways. **For either way, be sure to use the oldest milk first.**

- Place the container in the refrigerator. Thawed milk can stay in the refrigerator for up to 24 hours.
- Place the container in a bowl of warm tap water or warm it under warm running water.

If pump in small quantities, add fresh milk to frozen milk. Just chill the fresh milk before adding it. The amount of added cold milk must be less than the amount of the frozen milk.

SCENARIO 3 : NEONATAL EXAMINATION

1. Introduction
2. Definition
3. General examination
4. Anthropometric assessment
5. Head to toe examination
6. Neurological examination
7. Assessment of reflexes
8. Estimation of gestational age

1. INTRODUCTION

A complete physical examination is an important part of newborn care. Each body system is carefully examined for signs of health and normal function. Look for any signs of illness or birth defects

2. DEFINITION

Neonatal assessment is defined as the assessment of a recently born infant at various point within the timeframe of first 6 to 8 weeks.

2. GENERAL EXAMINATION

i.Posture: In full terms babies, generalized flexion is seen. The neck and extremities are flexed. Preterm babies may lie in frog like posture

ii. Activity: Normal neonates are alert and active. The baby may be irritable or drowsy if having any neurological problem

iii. Cry: Normal neonate cries when hungry or wet. Weak cry is seen in preterm or low birth weight babies. High pitch cry is seen in babies with raised intracranial pressure

iv. Color: The entire body and extremities are pink. If the baby is having respiratory distress, extremities may be blue.

v. Vital signs: TPR are checked. The temperature of new born ranges between 35.5 C 37.5C (axillary temperature). The heart rate should be auscultated with stethoscope when the baby is calm. Apical beat normally ranges from 120- 140 beats/minute. The respiratory rate ranges from 40-60 breaths per minute.

3. ANTHROPOMETRIC ASSESSMENT

i.Weight: The body weight of the neonate on an average is 2,5-3 kg. The neonate loses about10% weight in first ten day of life. Thereafter babies gains about 25 -30 gms/day

ii. Length (Head to heel): The average length of a neonate is 45.50 cm.

iii. Head circumferences immediately after birth, moulding of skull may give inaccurate measurement of head circumference, So it should be measured after 48 hours of birth

The normal head circumference is 33.35 cm. It may be larger in case of hydrocephalus and smaller in microcephaly or crantostenosis (premature closure of sutures)

iv. Chest circumference: It is about 31-33 cm. It is 2-3 cm less than head circumference

4. HEAD TO TOE EXAMINATION

i. **Skin**: The neonate's skin is soft, smooth and puffy.
At birth it is covered with white cheesy substance called vernix caseosa, Vernix has insulating and bacteriostatic power. The color of skin should be observed for presence of pallor, jaundice or cyanosis. Check skin turgor for dehydration

ii.**Head**: Newborn's skull bones are not completely fused. They are joined together by sutures and fontanels. The anterior fontanel which is bound by frontal and parietal bones is diamond shaped. It is 2.5em X 4cm. The posterior fontanel, bounded by occipital and parietal bones is triangular shaped, Widely spaced sutures and bulging fontanel suggest increased intra cranial pressure as seen in hydrocephalus and meningitis. Depressed fontanel may indicate dehydration. Skull should also be examined for cephalhematoma and caput succedaneum.

iii **Face:** Examine the newborn's face for any asymmetry or malformation

iv. **Eyes**: Examine eyes for position and symmetry. The distance between inner canthus of both eyes should be 2cm. Notify any abnormal eye discharge, haemorrhage or inflammation

v. **Ears**: In a term infant, the ear cartilage is well formed. Malformed or low set ears are seen in Down's syndrome. Startle reflex on hearing loud noise indicates audibility

vi. **Nose**: The neonates are nasal breathers. Examine nose for its shape and nasal bridge, Nasal flaring indicates respiratory distress
vii. **Mouth**: The mouth and throat can be examined when the neonate is crying or yawning, Observe for cleft lip and cleft palate. White plaques adhering to oral mucosa and tongue indicate infection by Candida albicans

ix. **Chest**: The chest of newborn is barrel shaped. The breast may be engorged and having witch' milk due to stimulation by maternal hormones

x. **Abdomen**: the abdomen on palpation should feel soft. There should be no palpable mass. The liver edge can be palpated from 1-3 cm below the costal margin. The tip of spleen is palpated on the left. the abdomen should not de distended or scaphoid. Look for presence umbilical or inguinal hernia. The umbilical cord should be inspected for presence of two arteries and one vein. Auscultate abdomen For presence of bowel sounds.

xi. **Feet and Hands**: Look for creases in feet and hands, A transverse palmar crease suggests down's syndrome. Observe the number of digits and any webbing between the digits (known asymmetry) Examine the range of motion also.

xii. **Genitalia**: In full term female neonates, the labia majora cover the labía minora and clitoris is invisible only on separating labia. The urethral opening is situated behind clitoris. Vaginal bloody discharge (pseudo menstruation) may be noticed due to abrupt withdrawal of maternal hormone. In full term male neonates the scrotum is large, pendulous, darkly pigmented and testes are descended. The penis should be inspected for location of urethral opening

xiii. **Back and Spine**: Inspect the spine for any mass , opening , any tuft of hair or protruding sac.

5. NEUROLOGICAL EXAMINATION

The neurologic assessment is based on four fundamental observations:-

i. Muscle tone

ii. Joint mobility

iii. Automatic reflexes

iv. Body movements

i. Muscle tone: This is assessed by three parameters a) Posture b) Passive Tone c) Active Tone

ii. Joint mobility : In preterm babies the joints are relatively stiff so the degree of flexion at ankle and wrist is limited. In term babies joints are more flexible and relaxed.

iii. Certain Automatic Reflexes: The presence of certain reflexes such as moro's reflex, pupillary reflex, blinking, grasp, rooting, and sucking reflex help in establishing neurological health of infant. These reflexes disappear.

iv. Body Movements: The neonate if not sleeping, is active and alert. The baby moves extremities actively

6. ASSESSMENT OF REFLEXES

Reflex	**Expected behavioural response**	**Age of appearance**	**Age of disappearance**
(a) Reflexes of Eye			
1. Blinking	Infant blinks at sudden appearance or bright light or approach of any object towards eye	Birth	Does not disappear
2. Pupilary reaction	Pupil constrict when bright light falls on it	Birth	Does not disappear
3. Doll's eye	As head is moved to right or left, eye leg behind and do not immediately adjust to new position	Birth	3-4month
(b)Reflexes of Nose			
4. Sneeze	Spontaneous response	Birth	Does not disappear

	of nasal passage to any irritant		
5. Glabellar	Tapping briskly on bridge of nose cause eyes to close tightly	Birth	Does not disappear
(c)Reflexes of mouth			
6. Rooting	The infant turns his head towards any object that touches his cheeks and actively seeks the nipple and begins to suck	Birth	3-4month
7. Sucking	Baby begin to suck in response to stimulation of circumoral area	Birth	Persists during infancy
8. Gag	Stimulation of posterior pharynx by food or suction cause infant to gag	Birth	Persists through-out life
9. Extrusion	When tongue is touched or depressed, infant respond by forcing it outward	Birth	4month
10. Cough	Irritation of mucous membrane of larynx cause cough	Birth	Persist life long
(d).Reflexes of Extremities			
11. Grasp	Touching palms of hands or soles of feet	Birth	Palmar grasp at 3 months and planter

	near base of digits cause flexion of hands (palmar grasp) and soles.		grasp at 8 months
12. Babinski	Stroking outer sole of foot upward from heel across ball of foot cause toes to hyper extend.	Birth	1year
(e)Mass Reflexes			
13. Moro's	When loud voice is made or there is sudden change in equilibrium. It cause sudden extension and abduction of extremities and fanning of fingers	Birth	3-4months
14. Perez	When infant is prone on a firm surface, thumb is pressed along spine from sacrum to neck, infant respond by crying, flexing extremities and elevating pelvis and head and lordosis of spine	Birth	4-6months
15. Tonic neck	When infant's head is turned to one side , arm and leg extend on that side and opposite arm and leg flex	2nd month	3-4months

16. Galant reflex	Stroking infant back alongside spine cause hip to move towards stimulated side	At Birth	4weeks
17. Dance or stepping	If infant is held such that sole of foot touches a hard surface, there is reciprocal flexion and extension of legs	At Birth	3-4weeks
18. Crawl	When placed on abdomen, infant makes crawling movement	Birth	4weeks

7. ESTIMATION OF GESTATIONAL AGE

Gestational age assessment means figuring out the number of weeks of your pregnancy. A full-term pregnancy is usually 40 weeks. It's important to assess if gestational age is uncertain or if your baby is smaller or larger than expected.

The new Ballard score is commonly used to determine gestational age. Here's how it works:

- Scores are given for 6 physical and 6 nerve and muscle development (neuromuscular) signs of maturity. The scores for each may range from -1 to 5.
- The scores are added together to determine the baby's gestational age. The total score may range from -10 to 50.
- Premature babies have low scores. Babies born late have high scores.

The physical maturity are assessed by

The physical assessment includes an exam of the following physical characteristics:

- **Skin texture.** Skin may be sticky, smooth, or peeling.
- **Lanugo.** This is the soft downy hair on a baby's body. It's absent in premature babies. It's present in full-term babies, but not in babies born late.

- **Plantar creases.** These are the creases on the soles of the feet. They range from absent to covering the entire foot.
- **Breast.** The thickness and size of the breast tissue and the areola (the darkened area around each nipple) are assessed.
- **Eyes and ears.** Eyelids are checked to see if they are open or fused shut (more likely in a premature baby). The amount of cartilage and stiffness of the ear tissue are also noted.
- **Male genitals.** The presence of testes and the look of the scrotum, from smooth to wrinkled, is verified.
- **Female genitals.** The appearance and size of the clitoris and the labia are noted.

The neuromuscular maturity are assessed by

The neuromuscular assessment includes an exam of the following:

- **Posture.** How the baby holds his or her arms and legs.
- **Square window.** How far the baby's hands can be flexed toward the wrist.
- **Arm recoil.** How well the baby's arms spring back to a flexed position.
- **Popliteal angle.** How well the baby's knees bend and straighten.
- **Scarf sign.** How far the elbows can be moved across the baby's chest.
- **Heel to ear.** How close the baby's feet can be moved to the ears.

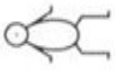
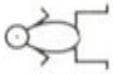
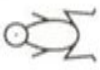
	0	1	2	3	4	5
Skin	Gelatinous, red, trans-parent	Smooth, pink, visible veins	Superficial peeling &/or rash, few veins	Cracking, pale area, rare veins	Parchment, deep cracking, no vessels	Leathery, cracked, wrinkled
Lanugo	None	Abundant	Thinning	Bald areas	Mostly bald	
Plantar creases	No crease	Faint red marks	Anterior transverse crease only	Creases anterior two thirds	Creases cover entire sole	
Breast	Barely perceptible	Flat areola, no bud	Stippled areola, 1-2 mm bud	Raised areola, 3-4 mm bud	Full areola, 5-10 mm bud	
Ear	Pinna flat, stays folded	Slightly curved pinna, soft, slow recoil	Well-curved pinna, soft but ready recoil	Formed & firm with instant recoil	Thick cartilage, ear stiff	
Genitals: male	Scrotum empty, no rugae		Testes descending, few rugae	Testes down, good rugae	Testes pendulous, deep rugae	
Genitals: female	Prominent clitoris & labia minora		Majora & minora equally prominent	Majora large, minora small	Clitoris & minora completely covered	

"Ballard" Neonatal Gestational Maturity Assessment

Maturity Rating

Score	Wks.
5	26
10	28
15	30
20	32
25	34
30	36
35	38
40	40
45	42
50	44

Neuromuscular Maturity

Posture						
Square window (wrist)	90°	60°	45°	30°	0°	
Arm recall	180°		100°-180°	90°-100°	<90°	
Popliteal angle	180°	160°	130°	110°	90°	<90°
Scarf sign						
Heel to ear						

SECTION 4 :NEONATAL RESUSCITATION

1. Introduction
2. Definition
3. TABC of Resuscitation
4. Neonatal supplies and equipment
5. Steps of resuscitation
6. Maintain circulation

1.INTRODUCTION

Approximately 10% of newborns require some assistance to begin breathing at birth. Less than 1% require extensive resuscitation measures. The National Resuscitation Program was developed by American academy of Pediatrics (AAP) in conjunction with American Heart Association (AHA) following the neonate resuscitation guidelines, According to the National Resuscitation Program, those newborns that do not require resuscitation can generally be identified by a rapid assessment of following 3 characteristics :-

1. Term Gestation?
2. Crying or Breathing
3. Good Muscles tone?

It answer to all these questions is "Yes", the baby does not need resuscitation. The baby should be dried and placed in skin-to-skin contact with the mother, Apgar scoring should be done simultaneously. If answer to above three questions is "No", the infant requires resuscitation

2.DEFINITION

Neonatal resuscitation is defined as the set of interventions at the time of the birth to support the establishment of breathing and circulation

3.TABC OF RESUSCITATION

T- Maintenance of Temperature

.i. Dry the baby quickly

ii. Remove wet linen

iii. Place the baby under radiant warmer

A- **Establish an open airway**

i. Position the infant.

ii. Suction mouth and nose [In few cases also trachea]

iii. ET intubation, if needed to ensure open airway

B- **Initiate Breathing**

.i. Tactile stimulation to initiate respiration

ii. PPV when necessary, using either Bag and mask or Bag and ET tube

C- **Circulation**

i. Chest compression

ii. Medications (If needed)

4. NEONATAL RESUSCITATION SUPPLIES AND EQUIPMENTS

Suction equipment

1. Mucus aspirator
2. Meconium aspirator
3. Mechanic suction\Suction catheters 10 F or 12 f
4. Feeding tube 6 F or 20 Ml syringe

Bag and mask equipments

1. Neotal resuscitation bag
2. Face mask newborn and premature sizes
3. Oxygen with flow meter and tubing

Intubation equipments

1. Laryngoscope with straight blades No 0(preterm) and No 1 (term)
2. Extra bulbs and batteries for laryngoscope
3. Endotracheal tubes: 2.5, 3.0, 3.5, 4.0 mm ID
4. Stylet
5. Scissors

Medications

1. Ephinephrine
2. Naloxone hydrochloride
3. Sodium bicarbonate
4. Normal saline
5. Sterile water

Miscellaneous

1. Watch with seconds' hand
2. Linen, shoulder roll
3. Radiant warmer
4. Stethoscope
5. Adhesive tapers
6. Syringes 1, 2, 3, 4, 10, 20, 50 ml
7. Gauze
8. Umbilical cord 3.5F, 5F
9. Three way stopcocks
10. Gloves

5.STEPS OF RESUSCITATION

1. Maintenance of Temperature

Hypothermia in newborn leads to increased metabolism, increased oxygen needs and metabolic acidosis so it is very important to prevent hypothermia in new born, in order to prevent heat loss, the baby should be dried immediately and placed under radiant warmer

2. Establish an open airway

a. **Positioning.** The infant should be positioned properly to ensure open airway The baby should be positioned on back with neck slightly extended, To maintain correct position, a rolled towel or hest is kept under the shoulders, elevating them 3/4th to 1 inch off the mattress

b. **Suctioning** If the infant has copious secretions in the mouth, as on as the infant is positioned suctioning of mouth and nose is done using bulb syringe or mechanical suction. The mouth is suctioned first to ensure that there is nothing for the infant to aspirate if he or she gasp when nose is suctioned, While suctioning the mouth, the suction Lube is inserted till 5cm mark is at baby's lips. Suction while withdrawing the tube, Next introduce the suction tube upto 3 cm in each nostril. Suction for less than 20 seconds, If thick or particulate meconium is present in amniotic fluid, the mouth, oropharynx and hypopharynx should be suctioned as soon as he head is delivered. After delivery of baby, the trachea should be intubated and suctioned.

3. Initiating Breathing

a. Tactile stimulation- Both drying and suctioning the infant produces stimulation, which for many infants is enough to induce respiration, if respiration is Inadequate, tactile stimulation may be given by slapping and flicking the soles of feet and rubbing the infants back. These slaps or flicks should be given only once or twice, If the infant remains apnoea, positive pressure ventilation should be started

b. Positive Pressure Ventilation- Bag and mask ventilation is indicated if after tactile stimulation the infant is gasping and respiration is spontaneous but heart rate is below 100 beats/minute.

- With infants neck slightly extended to ensure open airway, place the mask on baby's face and ensure that mask forms a tight seal around chin, mouth and nose
- Compress the ambu/ resuscitation bag gently and ensure that chest expands with every ventilation. Ventilate at a rate of 40-60 breaths per minute
- Response to ventilation is seem by
    1. Improvement in baby’s colour from blue to pink
    2. Improved respiration
    3. Heart rate rise to more than 100/minute

After the infant has received 15-30 seconds of ventilation with 100% oxygen, chest heart rate and take action as follows

1	If heart rate > 100	If spontaneous respiration is present provide tactile stimulation and monitor heart rate, respiration and color If not breathing or if gasping, continue ventilation
2	If heart rate 60-100 and increasing	Continue ventilation
3	If heart rate 60-100 and not increasing or below 60	Check adequacy of ventilation Begin chest compression if heart rate is below 80 bets per minute

5.Maintain Circulation:

a. Chest Compression- When the infant is hypoxic; there is diminished blood and oxygen flew to the vital organs. Chest compressions are used to temporarily increase circulation and oxygen delivery the compression must be accompanied by ventilation with 100% oxygen, so that the blood being circulated during chest compressions gets oxygenated.

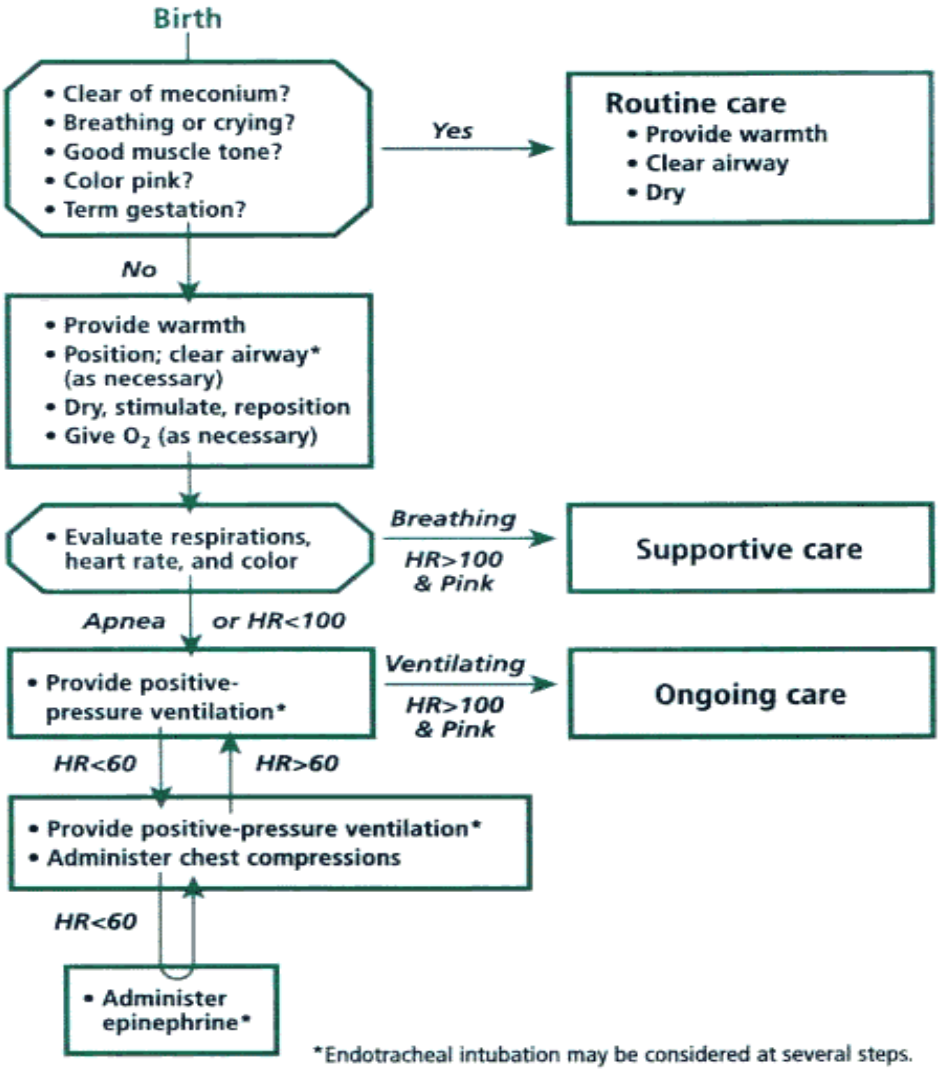
Chest compressions are provided by using either thumb technique or two finger technique, During chest compressions, pressure is applied to lower third of the sternum, depressing it to ½ to 3/4 inch. About 90 chest compressions should be given in a minute. One ventilation should be given after compression (1:3). In 1 minute, 90 chest compression and 30 positive pressure ventilations are given.

1	Evaluation	After a period of 30s seconds of chest compression , heart rate is checked
2	HR < 80	Continue chest compression and positive pressure ventilation Medication is initiated

3	If HR> 80	Discontinue chest compression and continue ventilation until HR > 100 beats / minute

b. **Medications-**Neonates who do not improve with ventilation and chest compression, require medications like-adrenaline, soda bicarbonate, naloxone and dopamine. These medications are administered in umbilical vein via catheter. Adrenaline is administered in dose of 0.1-0.3 ml/kg if heart rate continues to be less than 80/minute even after chest compression. In case of poor respiration and slow heart rate even after 5-6 minutes of resuscitation, soda bicarb is given in dose of 2 ml/kg body weight, diluted 1:1 in distil water. In case of peripheral shock indicated by cyanosis absent pulse or capillary filling time of more than 3 seconds, Volume expanders are given like Ringer lactate or 0.9 % Normal saline.

5.1Steps of neonatal resuscitation



SECTION 5 :ROUTINE CARE OF NEWBORN

1. Introduction
2. Definition
3. Safe and thermo neutral environment
4. Bathing
5. Rooming in
6. Feeding
7. Cord care
8. Personal hygiene
9. Vital signs
10. Immunization

11. Observation of early signs of diseases
12. Prevention of infections
13. Care of bowel and bladder
14. Safety of newborn
15. Parental teaching and follow up

1.INTRODUCTION

All mothers need help, support, and advice in the first few days after delivery to ensure proper care of their newly born babies. The care and help given to mothers and babies during this period are critical in maintaining the normality and in preventing any complications. Therefore, it is very important for the health care providers to help the mothers - whether at a health facility or at home - in this crucial time period. First time mothers often need more help and support for the proper care of their infants.

2.DEFINITION

The care given to the newborn regularly after the immediate care of newborn

3.SAFE AND THERMO NEUTRAL ENVIRONMENT

- Infants should be nursed in the neutral thermal environment and have a core body temperature between 36.5 – 37.2 degrees Celsius.

  The neutral thermal environment is the temperature range where heat production is at the minimum needed to maintain normal body temperature.
- It depends on Birth weight, postnatal age, and whether the infant is clothed or naked.

  Because heat production requires oxygen consumption and glucose use, persistent hypothermia may deplete these stores, leading to metabolic acidosis, hypoglycaemia, decreased surfactant production, increased caloric requirements,

and if chronic, impaired weight gain.

Infants lose heat through conduction, convection, radiation and evaporation.

Nursing care is critical in supporting thermoregulation through ongoing assessments and environmental interventions to decrease heat loss for the infant being cared for in an incubator.

3.1Indications

- An infant may require an incubator for the following reasons:
  - When they are not maintaining their own temperature with clothing and wrapping.
  - When they are acutely unwell and close observation is required.
  - When they are at risk of abnormal heat loss.
  - They have a known infection/ or the potential to develop sepsis.
  - There are nutritional concerns (given that infants use a large proportion of their calorific intake for maintaining their temperature
  - They are small for gestational age.
  - They have a large wound site.
  - New stoma (not always indicated) or exposed bowel.

3.2Nursing Care

Step	Action
1	**Prepare the incubator** 1. Pre-warmed to a temperature appropriate to the infant's age, size and condition. 2. Use in Air mode and must always be switched on with the motor running if in use for a baby. 3. Check and record the incubator temperature hourly. 4. Position away from draughts or direct sunlight.

	5. Do not routinely use on the humidity function while in use for babies in hospital– this function is generally required for premature infants only. **Note**: Ensure alarms self-test has been completed (automatic). If the unit fails the self test, the alarm sounds, and one or more messages are displayed in the trend/alarm window.
2	**Care of Baby** 1. Maintain axilla temperature between 36.5°C and 37.2°C 2. Access baby by using the portholes, limit opening of large door as this interferes with air temperature. 3. Ensure baby is nursed naked apart from a nappy. 4. Position baby utilizing rolled towels/cloth nappies to provide boundaries that support 'nesting' and flexion of limbs but keeping face clear **Explain to parents/caregivers the purpose of an incubator for their baby** 1. Ensure they are familiar with how to access baby as it is optimal for parents to continue to touch and provide comfort. 2. Maintain a quiet environment 3. There is no tapping on the canopy. 4. No equipment is placed on top of the canopy. 5. Careful opening and closing of doors.
3	**Adjusting incubator temperature** 1. Default incubator temperature in NICU is 35 degrees 2. Adjust the incubator temperature by no more or less than 0.5 of a degree at a time. 3. Re-check the temperature within half an hour of making any adjustment.
4	**Monitoring** 1. Axilla temperature is taken on admission into the incubator and rechecked in

	the first hour. 2. Temperature is documented 4-6 hourly as condition dictates.
5	**Use of Humidification** 1. Is utilized for incubator care of preterm babies only – NOT required for babies >32weeks. **Remember:** 1. A stressed baby is less able to maintain thermo neutrality 2. Surgical babies are prone to stress both before, during and after surgery.

4. BATHING

- A bath can be a time of fun and closeness for both mother and baby. Choose a time when baby is not hungry.

  Baby only needs a bath two or three times a week.
- Bathing baby too often may dry out her skin.
- Use a soap made for babies that does not have perfumes and dyes.
- Use very little soap during bath time.
- There are two ways to bathe baby: a sponge bath or a tub or sink bath.
- Give baby a sponge bath until the umbilical cord falls off.
- If baby's skin is dry, check with baby's health care provider before applying lotion.
- It is normal for newborn skin to be dry.

4.1Sponge bath

Gather everything need before undress baby.The article needed are:

- a baby tub or a clean sink
- warm water
- mild baby soap
- baby shampoo
- washcloth
- towel
- soft bristled baby brush
- clean diaper
- clothing

Lay baby on a towel on the changing table or counter. Keep her covered with a towel so she doesn't get cold. Keep bath time short.

- Test the temperature of the water on wrist or inside of arm. It should feel warm, not hot.
- Only uncover the part of baby that to be washed. Pat the area dry and re-cover with the towel.
- Use a soft washcloth and warm water to clean baby. Rinse the cloth after washing each body area.
- Wash baby from where she is clean to where she is dirty.

The order is:

Eyes

Use the clean edge of the washcloth to clean around each eye. Gently wipe outward starting from the corner of the eye by the nose,

face and neck, tummy and back, arms and hands, legs and feet

genital area

- **for a girl:** wash the inside of the labia by wiping down toward the buttocks. Use a clean part of the washcloth for each side.
- **for a boy:** gently wash around the penis and around and under the scrotum. If circumcised, only use water on the penis until healing is complete. This usually takes seven to 20 days.

buttocks

- When the bath is over, wrap and dry baby with a soft towel.
- Don't use powder. It can get in baby's lungs and make sick.
- Brush baby's hair or scalp with a soft-bristled baby brush.

4.2Sink or tub bath

A. Use both hands to gently place baby in the tub.

B. Gently support baby head and neck with one hand while bathe baby with the other hand.

C. Hold baby so that the shoulders and head are over the tub while washing baby head.

Gather everything needed before undress baby. The needed articles are

-
- a baby tub or a clean sink
- warm water
- mild baby soap
- baby shampoo
- washcloth
- towel
- soft bristled baby brush
- clean diaper
- clothing

    - If using a sink or a plastic tub, it is helpful to line it with a towel or receiving blanket to make the surface less slippery.
    - Test the temperature of the water in the sink or tub on wrist or inside of arm **before** use the water or place baby in it. It should feel warm, not hot.
    - while placing baby in a clean sink or tub, make sure the water covers baby's body up to shoulders.
    - This will help keep baby warm. Position baby on back, supporting head with arm. Or, sit baby up, supporting baby head and neck with one hand.The water may not reach baby shoulders.
    - Hold baby firmly. Babies are slippery when wet
    - Wash baby from where she is clean to where she is dirty.

The order is:

eyes
Use the clean edge of the washcloth to clean around each eye. Gently wipe outward starting from the corner of the eye by the nose.

face and neck, tummy and back, arms and hands, legs and feet, genital area, buttocks

- Rinse the soap off well after cleaned an area.
- When the bath is over, wrap and dry baby with a soft towel.
- Don't use powder. It can get in baby's lungs and make baby sick.

- Brush baby's hair or scalp with a soft-bristled baby brush.

4.3 Washing baby's hair

Baby's hair should be washed one or two times a week. wash baby's head before put baby in the bath, or after the rest of bath is done.

- Hold so that baby shoulders and head are over the tub. (See drawing C.)
- Scoop up some of the bath water to wet baby head and use a small amount of tearless shampoo.
- Rinse head well and dry it with a towel.
- Brush baby's hair or scalp with a soft-bristled baby brush.

5.ROOMING IN

After the baby is transferred to the post natal ward, he should be nursed in a bassinet beside there's bed. This is called rooming-in.

It has the following advantages

1.promotes early initiation of breast feeding.

2.Provides opportunity for mother-baby interaction and bonding.

3.Relieves mother's anxiety related to where about of the baby

24 Hour Rooming-In benefits for mother:

- Better quality sleep
- Increased confidence in handling and caring for baby
- Ability to learn what your baby's cues are (sleepy, stressed, in need of quiet time, or hungry)
- Earlier identification of early feeding cues (rooting, opening mouth, and sucking on tongue, fingers, or hand)
- Improved breastfeeding experience
- Less infant crying and distress (they love to be near you)
- Less "baby blues" and postpartum depression
- Parents are better-rested and more relaxed by the end of the first week home.
- Increases opportunity for skin-to-skin contact

24 Hour Rooming-In benefits for baby:

- Better quality sleep. Your baby will develop a more regular sleep-wake cycle earlier, and may help ease the transition to day/night routines
- More stable body temperatures
- Generally more content, less crying
- More stable blood sugar
- Breastfeed sooner, longer, and more easily
- Lower levels of stress hormones
- Babies exposed to normal bacteria on mother's skin, which may protect them from becoming sick due to harmful germs231
- 0.

6. FEEDING

6.1 Newborn feeding

- Feeding is a time to nurture baby emotionally, as well as nutritionally. It is important to hold, cuddle and talk to baby during feedings. Baby will give cues when the baby is hungry:
    - squirms or has rapid eye movement while the eyes are closed
    - roots or turns her head when her cheek is stroked

- opens her mouth and searches
- smacks her lips
- makes sucking movements
- puts her hand in her mouth
- squirms
- cries (the last cue)

When baby shares these feeding cues, put baby to mother breast or prepare a bottle of formula. For the first couple of weeks, baby should eat at least eight to 12 times every 24 hours.

Newborns are normally sleepy for the first few days after birth, which can make it seem like they don't want to eat this often. However, being asleep does not mean baby is not hungry.

A newborn's need to sleep can override feelings of hunger. Babies do not understand feeding schedules. Trying to keep baby on an artificially longer pattern can cause frantic hunger.

6.2Hand hygiene

Whether breastfeeding or formula feeding, hand hygiene is important to prevent germs from spreading to baby or baby's milk or formula.

Hand hygiene is washing hands with soap and water or using an alcohol-based hand rub.

Perform hand hygiene before:

- picking up your baby to breastfeed or formula feed
- preparing to pump breastmilk
- preparing to mix formula

6.3Banked human milk

- Some mothers choose to provide banked human milk when they are not able to breastfeed. This is another option for feeding baby.

  Banked human milk is breastmilk donated by women who are currently breastfeeding their own babies and have an abundant milk supply. They donate their extra breastmilk to milk banks for babies who may need it.

Banked human milk is screened and tested for safety. It is pasteurized (heated to a high temperature) to remove any bacteria or germs that may be in the breastmilk. The banked human milk is then frozen for use.

6.4 Formula feeding

- If breastfeeding is not an option due to various reasons , feed baby formula. Infant formula is a healthy alternative to breastmilk and provides babies with the nutrients they need to grow and thrive.

  Feedings can be a time of giving more than nutrients to baby. Here are some suggestions for making this a special time for both mother and baby

  - Use this time to cuddle baby and hold baby close.
  - Give baby the closeness of skin-to-skin contact with the mother
  - Mother should Look at baby and talk or sing softly .
  - Alternate the side to feed on so that the baby isn't always looking in the same direction. This will promote balanced development of vision and neck muscles.

6.5Choosing formula

Although there are many types of formula, most babies do well with one that is cow-milk based.

Choose a formula that is iron-fortified. This is important to prevent iron deficiency, which can slow development.

Once made up, all formula must be refrigerated. Formula should be thrown out after 24 hours if it has not been used.

The different types of formula are:

- **powder**. This is the least expensive. It does not need to be refrigerated until it is mixed with water.
- **concentrated liquid**. This needs to have water added to it. It is more expensive than powder. It also must be refrigerated once the container is opened.
- **ready-to-use formula**. This is the most convenient and the most costly. It can be handy for the times when mixing might be difficult.

6.6Choosing bottles and nipples

Bottles are made of glass or plastic. When choosing a bottle, consider:

- Glass bottles last longer but may become a problem when a child is old enough to drop or throw one.
- When choosing or reusing plastic bottles:
  - Choose bottles that are made from non-polycarbonate (BPA) plastic.
  - Look for plastics that have the numbers 1, 2 or 5 in the recycling triangle.
  - Look for plastics that are labeled "BPA-free." Studies are suggesting that a potentially harmful chemical (bisphenol A) has been found in clear polycarbonate plastic. This is hard plastic that is usually clear.
- When a plastic bottle becomes cloudy, throw it out. This is a sign that the plastic is beginning to break down.
- Bottles come in two sizes: four ounces and eight ounces. A newborn takes about two ounces at a feeding. Use the smaller bottles for a while.
- . Newborns feed at least eight times in 24 hours.
- A "soft bottle" system that uses a disposable bag can be used.

Nipples come in several shapes and sizes. They can be made of silicon or latex. Consider the following:

- Silicon nipples are transparent and easy to keep clean.
- Latex nipples don't collapse easily if baby sucks hard.
- Replace a nipple when it becomes soft, sticky or discolored.
- A nipple should be easy for baby to suck. If the hole is too big, formula will flow through too quickly. baby may have a hard time keeping up with this fast flow. If the hole is too big, that nipple should not be used.
- Tightening the plastic ring around the nipple too tightly may slow the flow.
- If a hole gets clogged, remove the clog using a sterilized sewing needle.
- It's best to choose nipples and pacifiers that are the same shape.

6.7Bottle and nipple cleaning tips

- Use hot soapy water to wash the bottles and nipples by hand,
- Use special brushes to get the bottles and nipples clean. Make sure the nipple holes are cleaned well.
- Rinse well with hot water.

- Let the bottles and nipples air dry.
- bottles and nipples can also be washed in a dishwasher.
- Use a basket to hold the nipples, collars and caps.
- Do not store clean nipples and bottles in an air-tight container. Small amounts of milk could remain on them and cause mold.

6.8Mix and handle formula

- Check the expiration date on the container. Don't use if the formula is past this date.
- Wash the top of the new container before opening it.
- **It is important to follow the mixing directions on the can.** Baby can get sick if there is too much water or not enough water.
- Boiled cooled water can be used to mix concentrated or powder formula. Well water can be used after boiling
  - Heat the water to a full (rolling) boil for at least one minute.
  - Pour the water into a clean container and cover it. Keep it in the refrigerator.
  - Use the water within three days (72 hours) of mixing formula.
- Most babies prefer to have their formula warmed to body temperature. Some older babies will take a bottle right out of the refrigerator.
- To warm the mixed formula in a bottle, place it in a pan of warm water, or use a bottle warmer.
- Never heat mixed formula .This destroys nutrients and can cause hot spots that could burn baby's mouth or throat.
- Shake the bottle to mix the powder or concentrate evenly.
- Be sure to test the temperature of the formula before giving it to your baby. Squirt a few drops of formula on the inside of wrist. The temperature should be comfortably warm. It should not be hot.
- Follow the storage directions on the formula container.
- Throw away mixed formula that has been sitting out at room temperature for more than 30 minutes. It could make baby sick.

6.9Formula feed procedure

- After preparing a bottle and testing its temperature, ready to give baby a bottle.
- Feed every two to four hours. Start with one ounce at each feeding. Gradually increase this amount as baby's appetite grows.

- Make sure baby's tongue is under the nipple and the baby has more than the tip of the nipple in its mouth.
- Tip the bottle far enough for the formula to fill the nipple and the neck of the bottle.
- Burp baby after one ounce, or halfway through the feeding for older babies. How often baby needs to burp depends on how much air the baby has swallowed and how fast baby drinks. Learn more about burping.
- Expect baby's appetite to vary from feeding to feeding. Some days baby may drink a little more formula, other days less.
- Don't try to coax baby to finish a bottle. Follow baby's appetite.
- Throw out any formula that remains after a feeding. Don't try to save it for the next feeding.
- **Never** prop a bottle or leave baby alone to feed. This is dangerous and can cause choking, ear infections and tooth decay.

Here are the amounts of formula your baby needs:

- first day: (¼ ounce) 5 to 15 mL at each feeding
- second day: (½ ounce) 15 to 30 mL at each feeding
- third day: (1 ounce) 30 to 60 mL at each feeding
- fourth day: follow your baby's weight:
  - 8 pounds: 2 ounces (60 mL) at each feeding
  - 9 pounds: 2 ¼ ounces (67 mL) at each feeding
  - 10 pounds: 2 ½ ounces (75 mL) at each feeding

As baby grows, continue to increase the amount of formula based on his appetite and hunger cues.

6.9General feeding schedules:

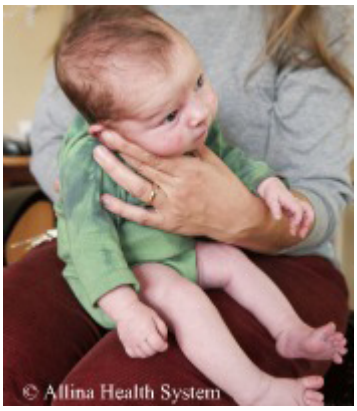
- **feed baby the first year (breastmilk or iron-fortified formula)**
  - 0 to 4 months: five to 10 feedings
  - 4 to 6 months: four to seven feedings
  - 6 to 8 months: four to five feedings
  - 8 to 10 months: four to five feedings
  - 10 to 12 months: three to four feedings

6.10Burp baby

- Burping varies from baby to baby. Many babies need to bring up the air they swallowed while feeding or crying. Not all babies need to burp.

  There are many different burping positions. rub or gently pat on baby's back until the burp is hearedd . Be sure to support baby's head and neck.

  ○



Position 1: sitting on mother lap

Make the baby upright on mother lap.

Cup baby's chin between mother index finger and thumb.

Lean the baby forward just a bit while rub or tap baby back.

Position 2: up on mother shoulder

Place baby facing the front of mother shoulder with baby chin close to the top of mother shoulder.

Mother use one hand to support baby's bottom.

Mother use other hand to support baby back while mother rub or tap.

Position 3: lying across Mother lap

Lay baby across the top of one or both knees.

Support baby's head with the palm of mother hand.

Mother use other hand to pat or rubbaby back.

Breastfed babies

Burp baby after the first breast. Try to burp for one minute. If baby doesn't burp, the baby doesn't need to.

Bottle-fed babies

Sometimes milk flows so quickly that a baby has to gulp to keep up with the flow. This leads to swallowing air. Try to burp halfway during the feeding and again at the end.

6.11Baby is getting enough milk

- baby's stomach grows from the size of an almond (day one) to a ping pong ball (day three) to a medium chicken egg (day seven). The amount of

breastmilk baby can hold will increase from one teaspoon to up to two ounces during that time.

Newborns have small stomachs that are not much bigger than an almond. Babies need to feed every few hours.

It is normal for new babies to feed eight to 12 times every 24 hours.

Newborns usually take between one-half to one ounce per feeding during the first week. Although it is difficult to measure the exact amount of milk, there are ways to reassure yourself and others that your baby is getting enough milk.

In general, Baby is getting enough milk if:

- she feeds eight to 12 times in 24 hours
- she has bursts of sucking and swallowing
- she appears satisfied after feeding
- there are enough wet and soiled diapers
- she regains her birth weight in 10 to 14 days.

Wet diapers

After the first week ,baby should have at least six wet diapers a day. If it is difficult to tell if the diaper is wet, put a sheet of facial tissue in the diaper. It can easily tell if the tissue is wet.

Stop doing this when are reassured about baby's urine output.

- ## Soiled diapers

Most babies have their first bowel movement within a few hours after birth.

baby will have at least three soiled diapers a day by the third or fourth day.

Days one to two: black, tarry stools.

- Stools from breastfed babies change in color and consistency during the first week:
    - **Days one to two**: Baby passes meconium. Meconium is baby's first stool. It will be black and tarry. This is normal.
    - **Days two to four**: the stools will become less sticky, lighter in color and more liquid.
    - **Days three to five**: the stools will be green-yellow to mustard-yellow, seedy and liquid.
    - **Days five and on**: the stools will be mustard-yellow, seedy and liquid.

  Colostrum and mature breastmilk will cause loose stools that pass easily. This helps prevent constipation.

  It is normal for breastfed babies to have runny, seedy and yellowish stools.

  .

Weight gain

Baby should regain birth weight in 10 to 14 days. After that, most babies gain from four to eight ounces a week.

How baby feeds

Baby should wake himself every two to three hours and actively nurse. The time periods may be one to three hours during the day and three to four hours at night.

Some babies cluster feed just before a longer sleep between feedings.

6.12 Special newborn feeding circumstances

- ## Breastfeeding after Cesarean birth

Giving birth by Cesarean will not prevent mother from breastfeeding. The pain medicine(s) mother receive are safe for baby.

:

- Use pillows to keep baby off the incision and in a good breastfeeding position.
- Make the mother to take pain medicine so that it is working when mother begin nursing..
- Mother should Eat well and drink plenty of fluids to help her body heal from the surgery.
- At home mother should keep her baby in her room for easier access at night.
- Mother should Limit her activities and housekeeping so that she can have energy for baby and breastfeeding.

Breastfeeding a premature baby

Breastmilk is the best food for a premature baby. It can help prevent infection, promote growth, and shorten your hospital stay.

As baby grows mother will be able to breastfeed baby directly. Skin-to-skin contact can provide closeness until baby is strong enough to nurse on own.

Returning to work or school

Mother can continue feeding after returning from work. It make the mother to reconnect with the baby at the end of the day.

7. CORD CARE

- After baby's umbilical cord is clamped and cut, a small piece of the cord remains. This dries out and then falls off revealing the "belly button."

The process usually takes five to 10 days but can take longer. When the cord falls off, there may be a few drops of blood at the site. This is normal.

Until the cord drops off:

- Clean the cord with a normal saline soft cotton.
- Keep the cord dry. Gently pat the cord dry with a towel if it gets wet during a bath.
- Keep the diaper below the cord. This helps keep the cord dry and open to the air. It also prevents irritation from urine.

It there's stool on the cord, drip some warm water on the cord and wipe it off.

Seek health care if the cord site:

- starts bleeding
- oozes for many days
- gets red
- has a foul smelling discharge

8. PERSONAL HYGIENE

Hygiene plays a crucial role to boost baby's overall health and well-being. Apart from basic cleanliness, pay special attention to keeping baby away from harmful infections

8.1Wash Your Hands:

It is very important for both the parents to wash their hands with a good antibacterial soap before they pick up their baby. If they touch their baby without using a hand sanitizer, the baby could become susceptible to harmful germs and suffer from infections like colds, diarrhea, flu, etc. It is also very important to wash hands before preparing baby's food or feeding the baby. Never forget to wash hands after changing the nappies or using the restroom

8.2Bathe Little One:

To protect baby from skin infections try and give the baby a good bath. Regularly giving baby a bath helps to keep the baby neat and tidy. Pay special attention to keep face, hands and diaper area clean every day. For the newborn, adopt the practice of giving a sponge bath until the baby navel region heals completely

8.3. Trim Baby's Fingernails:

Dirty nails are a sign of germs that can enter baby's body and cause harmful diseases when the baby sucks hands. Always try to keep baby's fingernails well-trimmed and clean. If the fingernails are sharp and long, the baby can scratch and hurt. The best time to trim your baby's nails is when the baby is asleep. Be sure to use appropriate clippers to cut baby's nails properly without hurting.

8.4. Clean His Ears:

Clean the baby's delicate ears very gently. Never insert cotton ear buds into tiny ears. If baby feels uncomfortable while touching his ears,the baby may be suffering from an ear infection. Consult the pediatrician immediately to alleviate the discomfort of baby.

8.5. Keep Baby's Nose Unclogged:

Clean the dried mucous deposit in baby's nose gently. Use a damp soft cotton cloth to do so.

8.6.Clean Eyes:

Try to keep baby's eyes clean and prevent an infection, gently remove the dried mucous with a soft damp cloth.

8.7. Change Baby's Diapers Regularly:

When it comes to hygiene for babies, changing the diapers at regular intervals of time is an important aspect. After changing the diaper, clean baby bottom with soft baby wipes. Keep baby clean and dry to prevent a diaper rash

8.8.Keep Baby's Toys Clean:

Most babies have a habit of putting their toys into their mouths. Regularly wash baby's toys to keep them clean. After washing the toys with plain water, wipe them using a clean tissue paper.

8.9. Sanitize Home:

To limit baby's exposure to harmful germs and microbes, keep home clean. Clean the floors using a disinfectant solution. Focus on sanitizing the areas baby uses. If baby uses a milk bottle, wash and sterilize it after each use to remove the unwanted germs. While preparing baby food in kitchen, mother can clean the utensils properly with warm water and detergent. Clean the kitchen and bathroom with a good disinfectant.

By following these simple hygiene habits, the baby can enjoy good health and immunity.

9. VITAL SIGNS

9.1 Introduction

Vital sign assessment includes heart rate, respiratory rate, blood pressure, oxygen saturation, respiratory effort, capillary refill time and temperature. Vital signs are often considered to be the baseline indicators of a patient's health status. Vital signs should be taken manually, not copied from the monitor display with the exception of oxygen saturation reading and automatic blood pressure (BP) readings. See considerations under blood pressure section below. Vital signs are never stagnant, and are affected by a variety

of internal and external factors, including many disease conditions, anxiety, pain, exercise, and even circadian and diurnal rhythms.

Pain is another key indicator of patient well-being and should therefore be assessed and documented along with vital signs.

9.1Taking baby's temperature

- A normal temperature for baby ranges from 97.6 F to 100.3 F. Need to take baby's temperature when the baby has a fever or is ill.

  Take baby's temperature by placing a thermometer in baby's armpit. This gives the axillary temperature.

  Axillary temperature:

  - Make the baby to Sit with baby on her lap.
  - Lift baby's arm and place the smaller end of the thermometer well into the armpit.
  - Lower baby's arm and hold it close to baby body..
  - Keep baby's arm down and the thermometer in place until it takes five minutes.
  - Remove the thermometer and read it.

  Rectal temperature:

  - Calm your baby.
  - Place a small amount of water-based lubricant (such as K-Y®Jelly) on the tip of the thermometer. (Some thermometers come with thin covers to use while taking a rectal temperature.)
    Avoid using petroleum jelly, like Vaseline®, because there may not be an accurate reading.
  - Lay baby over mother lap, lying baby on its stomach. Support baby head with mother thigh. Or, place the baby in the position mother use to change diaper and lift baby legs.
  - Undo diaper and leave it under baby
  - Spread baby buttocks with one hand. With the other hand, insert the tip of the thermometer about one-quarter to one-half an inch into the rectum, just until no longer see the tip.
  - Hold the thermometer between thumb and index finger.

- Wait until it is one minute.
- Remove the thermometer and read it.

Other ways of taking your baby's temperature are by:

- **forehead**: This is a temporal artery thermometer. It takes baby's temperature by scanning the temporal artery, which runs across the forehead down to the ear.
- **ear**: This is a tympanic thermometer. It is not as reliable to use and needs practice to be used correctly. This type of thermometer is not recommended for newborns.

9.2Heart Rate

Newborn should have their heart rate taken at the apex of the heart using a stethoscope.. heart rate should be taken for one *full minut*

9.3 Respiratory Rate and Respiratory Effort

Respiratory rate should be taken for *one full minute.* Auscultation with a stethoscope will increase the ability to hear shallow breaths.

Respiratory rhythm and depth should be evaluated using a manual assessment and observation of the patient's respiratory pattern. Visualization of the chest wall effectively enables the evaluation of accessory muscle use. Respiratory effort is described in the table below.

Normal	Normal effort no in-drawing, no apnea
Mild	Mild increased respiratory effort, nasal flaring, mild-in-drawing
Moderate	Moderately increased rep. effort, nasal flaring, marked in-drawing with multiple muscle groups
Severe	Greatly increased respiratory effort, in-drawing, audible grunt, nasal flaring, head bobbing,tracheal tug, accessory muscle use, apneas

9.4Blood Pressure

Can be measured using a manual sphygmomanometer and stethoscope, by the palpation of pulse technique, with a Doppler or by using an electronic BP device. When using an electronic BP device, validated the reading with a manual BP at the beginning of a shift

and/or when a different electronic BP device is being used or when pressure readings prompt concern. Interpret pressure readings with caution when an electronic BP device is used for an active infant; a Doppler may be a better choice.

9.5 Vital Signs Ranges

Age	Heart Rate	Respiratory Rate	Blood Pressure
0-1 month	93-182	26-65	45-80/33-52
1-3 months	120-178	28-55	65-85/35-55
3-6 months	107-197	22-52	70-90/35-65
6-12 months	108-178	22-52	80-100/40-65
1-2 years	90-152	20-50	80-100/40-70
2-3 years	90-152	20-40	80-110/40-80
3-5 years	74-138	20-30	80-115/40-80
5-7 years	65-138	20-26	80-115/40-80
8-10 years	62-130	14-26	85-125/45-85
11-13 years	62-130	14-22	95-135/45-85
14-18 years	62-120	12-22	100-145/50-90

10. IMMUNIZATION

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10.1Introduction

Immunization is a proven tool for controlling and eliminating life-threatening infectious diseases and is estimated to avert between 2 and 3 million deaths each year. It is one of the most cost-effective health investments, with proven strategies that make it accessible

to even the most hard-to-reach and vulnerable populations. It has clearly defined target groups; it can be delivered effectively through outreach activities; and vaccination does not require any major lifestyle change.

10.2Definition

Immunization is the process whereby a person is made immune or resistant to an infectious disease, typically by the administration of a vaccine. Vaccines stimulate the body's own immune system to protect the person against subsequent infection or disease

10.3 Universal Immunization Programme

- Immunization Programme is one of the key interventions for protection of children from life threatening conditions, which are preventable. It is one of the largest immunization programme in the world and a major public health intervention in the country.
- Immunization Programme in India was introduced in 1978 as Expanded Programme of Immunization (EPI)
- The programme gained momentum in 1985 and was expanded as Universal Immunization Programme (UIP) to be implemented in phased manner to cover all districts in the country by 1989-90.
- UIP become a part of Child Survival and Safe Motherhood Programme in 1992 Since, 1997, immunization activities have been an important component of National Reproductive and Child Health Programme and is currently one of the key areas under National Rural Health Mission (NRHM) since 2005
- Under the Universal Immunization Programme, Government of India is providing vaccination to prevent seven vaccine preventable diseases i.e.
    - Diphtheria, Pertussis, Tetanus, Polio, Measles, severe form of Childhood Tuberculosis and Hepatitis B, Hiaemophilus influenza type b (Hib) and Diarrhea

10.4 The Vaccination Schedule under the UIP

National Immunization Schedule				
Vaccine	**When to give**	**Dose**	**Route**	**Site**

For Infants				
BCG	At birth or as early as possible till one year of age	0.1ml (0.05ml until 1 month of age)	Intra -dermal	Left Upper Arm
Hepatitis B Birth dose	At birth or as early as possible within 24 hours	0.5 ml	Intramuscular	Anterolateral side of mid thigh-LEFT
OPV Birth dose	At birth or as early as possible within the first 15 days	2 drops	Oral	-
OPV 1,2 & 3	At 6 weeks, 10 weeks & 14 weeks	2 drops	Oral	-
IPV (inactivated Polio Vaccine)	14 weeks	0.5 ml	Intramuscular	Anterolateral side of mid thigh-RIGHT
Pentavelant 1,2 & 3	At 6 weeks, 10 weeks & 14 weeks	0.5 ml	Intramuscular	Anterolateral side of mid thigh-LEFT
Rota Virus Vaccine	At 6 weeks, 10 weeks & 14 weeks	5 drops	Oral	-
Measles 1st Dose	9 completed months-12 months. (give up to 5 years if not received at 9-12 months age)	0.5 ml	Subcutaneous	Right Upper Arm
Vitamin A, 1st Dose	At 9 months with measles	1 ml (1 lakh IU)	Oral	-

For children				
DPT 1st booster	16-24 months	0.5 ml	Intramuscular	Anterolateral side of mid thigh-LEFT
OPV Booster	16-24 months	2 drops	Oral	
Measles 2nd dose	16-24 Months	0.5 ml	Subcutaneous	Right Upper Arm
Vitamin A (2nd to 9thdose)	16 months with DPT/OPV booster, then, one dose every 6 month up to the age of 5 years)	2 ml (2 lakh IU)	Oral	-
DPT 2nd Booster	5-6 years	0.5 ml.	Intramuscular	Left Upper Arm
TT	10 years & 16 years	0.5 ml	Intramuscular	Upper Arm

Immunisation keeps baby safe from many infectious diseases, but, just like any medication, the baby may experience side effects after our vaccinations. These side effects can affect between one and 10 in every 100 children being immunised, depending on the vaccine. They are mostly mild and usually last one to two days.

10.5Common side effects after immunisation

The most common side effects of immunisations are:

- fever (that is, a temperature over 38.5°C)
- redness, swelling and tenderness around the area where the needle went in
- babies may be unsettled or sleepy

- sometimes, a small, hard lump (nodule) at the injection site may persist for some weeks or months. This should not be of concern and requires no treatment.

10.6Managing common side effects

A number of treatment options can reduce the side effects of the vaccine including:

- Give extra fluids to drink.
- Do not overdress children or babies if they are hot.
- Put a cold wet cloth on the injection site to ease discomfort.
- Although routine use of paracetamol after vaccination is not recommended, if fever or pain at the injection site is present, paracetamol can be given. Check the label for the correct dose or speak with your pharmacist, (especially when giving paracetamol to children

11.OBSERVATION OF EARLY SIGNS OF DISEASES

A daily routine examination should be done tll the mother and baby is discharged from the hospital.

The nurse should carefuly watch for the following danger signs and report immediately to the physician.

11.1 **Danger signs of newborn**

15THE BABY DOESN'T LATCH ON

Breastfeeding sounds like quite the easy task, besides it is among the most natural thing to do. Apparently not! Most people assume that the process is straightforward and simple. The hard truth is that most moms struggle when it comes to breastfeeding their young ones. A major breastfeeding issue is a challenge to achieve the correct latch. A proper latch is required in order for a baby to nurse appropriately, not inflict too much pain on the mom and for the baby to get the required milk amount.

However, it’s no walk in the park for some babies. Factors that increase the difficulties for babies to latch properly include the position of the mom’s nipples, their shape, and the baby’s mouth shape. The infant could also be tongue-tied, which means that the frenulum, is a string of tissue found underneath the tongue that affixes the tongue to the mouth floor, is probably short.

Despite latching problems being prominent, it is advisable that you see your pediatrician who will check the baby and if tongue-tied, a short and simple operation can fix it.

14SWALLOWING DOESN'T COME EASY

It is said that a baby doesn’t gag when a mom introduces solid food, but that’s just but a myth. Newborns are naturally born with a gagging reflex that protects them from swallowing unidentified objects. When a mom introduces a new item to her baby’s diet, the normal reaction is a rejection of the item, gagging, then spitting the item out. This reflex is on the higher side in the initial weeks after birth. However, as the baby grows, the gags become less and the baby learns to eat solid items.

However, it is important to identify habits that could be hazardous and require a pediatrician’s attention:

When a formula is fed, the baby may throw up (not just a bit of spit up) due to overfeeding or probably because the baby is intolerant to formula. 2) baby may also have a physical condition that counters normal digestion causing the baby to gag. 3) Vomit that is discolored or has a tinge of green could be a sign of an intestinal obstruction. 4) If child vomits an unusually high amount of milk after breastfeeding or experiences missile-like, vigorous vomiting, this could be an indication of a more severe problem.

13 URINATING IRREGULARLY

Sounds absurd? It is one thing to not urinate, but it is another when baby seems to have issue urinating. Normally, a mom would brush this off since it doesn’t sound like cause for alarm.

There are however some signs that r pediatrician needs to be consulted on that could be bad news for baby.

If baby looks distressed or shows discomfort while urinating, there is a chance they have a urinary tract infection. 2) If the baby's diaper has stains colored either pink or salmon-like, there is a chance the baby's urine is highly concentrated. Not to worry, this is not alarming news. However, if the staining becomes persistent, it is advisable to talk to the pediatrician in order to check for other underlying factors. 3) If there is a bloody spot or blood on your baby's diaper there's probably nothing to worry about. However, the baby needs urgent medical attention if the bleeding is accompanied by either a fever or abdominal pain.

12NEVER MAKING EYE CONTACT

Most infants are born with marginally crossed eyes. In most cases, until the baby is four months old, his eyes will probably stay crossed. Babies' eyes, with time, develop typically and they can place both people and objects into focus. However, it is cause for alarm when baby has crossed eyes after four months, this happens in rare cases.

Every infant should have their initial check-up when they are nine months old. It is essential that in case baby has an abnormal eye turning, mother should take him to the hospital so that he's tested even before he turns nine-months-old. This is to prevent any future complications and rectify the problem. The baby could be diagnosed with several conditions such as Strabismus. This is when either one or both eyes wander either up, down, outward or inward or they fail to line up.

Both eyes need to function together in order for good vision to develop. If the baby has strabismus, each eye presents a contrasting image. This eventually weakens one eye, further causing amblyopia which is worse. It is critical that your baby is checked so he develops a proper vision.

11A RED UMBILICAL CORD

Most new moms are surprised to discover that the baby's belly button, when they are born, is not as cute as they'd imagined. Basically, they don't have one yet. What momforgot, is that the belly button was the point where the umbilical cord conjoined the placenta to the baby. During pregnancy, the cord delivered food and oxygen to the fetus. Once the baby is born it is not longer needed and so it is cut and clamped. Once it's clamped, a stump is left that is purple in color and it eventually changes to dark brown till it falls off after a few weeks.

The stump is sensitive and should be cared for or it can get infected. It should be properly cleaned and kept dry at all times.

If it appears swollen, reddish, is constantly bleeding, is foul smelling or oozes pus; chances are something is wrong and the baby should see the pediatrician

10LOOKING SLUGGISH

If the baby lacks or has little energy, sleeps longer than he should, and finds it hard to wake up to feed, there's a probability that something is wrong. When he wakes up, if he looks sluggish or drowsy, doesn't pay attention to any visual simulations or sounds and is barely alert, chances are that he has lethargy.

About Kids Health lets moms know that lethargy is very difficult to identify because it takes time to develop. It could either be a sign of a serious infection such as meningitis or influenza, or a normal cold. Heart conditions or blood diseases for instance thalassemia can be causes for lethargy.

Lethargy, however, can be caused by many other conditions and it is a symptom that is common to any illness. Due to this, it is advisable that once a mom notices the baby not only looks sluggish but experiences other symptoms synonymous with lethargy, she should inform her pediatrician for the baby to be checked. Treatment will be determined by the specific condition causing baby to be listless and lethargic.

9A CASE OF INSOMNIA

Moms will swear that this is one of their worst nightmares. If r baby doesn't sleep, chances are mother won't catch any sleep either. Sleep deprivation is not at all pleasant and reduces productivity and makes one moody.

Sleep Sense states that there a ton of reasons baby won't sleep.

Probably his diaper is soiled, he's sick or hungry, or there's too much going on around him. These are common reasons why baby won't sleep and you're probably used to them already.

Baby is no machine. Just because mother want him to nap doesn't mean he will close his eyes every time mother snap her fingers. Develop a routine just like the one adults and older kids conform to.

The brain can be trained on the number of hours and the pattern mother can adapt to sleep and it conforms to that routine. During the first few weeks, it is completely normal for a baby not to catch a lot of sleep. However, if baby refuses to nap completely or refuses to sleep while on his back, it is advisable that mother take him to the pediatrician who can conduct a physical examination and identify any underlying causes.

8JAUNDICE

WebMD states that jaundice is very common in newborns such that in most cases it is barely a cause for alarm. It is a yellow tint observed in a newborn's sclera (white eye part) and the skin. It is an indication of excessive bilirubin in your baby's blood. Hyperbilirubinemia is the term used to describe the presence of too much bilirubin in the blood.

Many babies get jaundice in their first week of birth and it's unfortunate that they only begin to experience the signs and symptoms of jaundice after they have left the hospital. Most doctors, therefore, prefer conducting a follow-up exam when the infant is between three to five days old. As stated, most infants get a case of mild jaundice.

Normally, it goes away by itself in a week or two without any negative impacts or it gets better. Jaundice should however not be taken lightly. This is because in rare situations if the levels of bilirubin are excessively high and remain untreated, there is a probability that baby gets kernicterus brain damage, which can cause long-lasting complications.

7NOT RESPONDING NORMALLY TO SOUND

Infant's hearing ability plays a big role and is the foundation of his learning ability. Normally, a pediatrician will conduct a screening to check for any signs of hearing impairment, but a parent/caregiver needs to be alert for any warning signs. Hearing loss signs will vary from baby to baby and the extent of the impairment will also vary.

Weird enough, the signs may not seem in any way as a concern. Maybe your baby is quite the sound sleeper, or according to What to Expect, perhaps he has colic and doesn't relax to any soothing sound or voice.

If mother notice the following signs it is advisable that mother should consult pediatrician right away, especially in infants below four months:

If by two months, the baby doesn't make sounds like *ohh* or keeps quiet when familiar voices are around. 2) If he's not alarmed by a loud sudden sound, respond to voices, music or sounds. 3) If soft sounds don't soothe him. 4) If he doesn't wake up or move on hearing voices or noises nearby while sleeping in a very quiet room.

6DIFFICULTY BREATHING

BabyCenter reminds moms that trouble breathing is serious and means mother need to contact your pediatrician immediately. Below are signs that baby is experiencing breathing difficulties.

The baby breathes much faster than usual. The head keeps bobbing. Grunts when the baby exhales. When your baby inhales, the tissue centrally located in the upper abdomen is sucked in. If mother notice a bluish pigment on your baby's skin or lips. Babies' lips are normally pink, it is, therefore, important to check baby's breathing if the lips turn blue. She insists that this is not normal and it requires urgent doctor attention.

When a baby with blue lips starts to cough, has seizures and also a fever,mother definitely need to rush the baby to the hospital. Don't fret, however, when baby is happy and playful after eating something blue or purple in color.

5NO APPETITE

Newborns love to eat! They just don't eat though, they eat a lot. A baby who weighs eight pounds should eat approximately 20 pounds in a day, a newborn's average size. Totally unbelievable! This, however, will vary from infant to infant just like people's appetites vary at every age.

If observe that your baby who was eating a lot suddenly has no interest in taking the bottle or nursing, then there is cause for concern.

One thing to note is that with newborns there lacks reason or rhythm when it comes to the period they eat or how much they can consume in one feeding. However, one thing is for certain, a baby will feed when he is hungry.

If newborn lacks appetite, there's a probability he doesn't like the breastmilk or formula fed, he could be sick or there could be an underlying problem that is best identified by your pediatrician.

4THE CRYING NEVER STOPS

Everyone from their mom, friends, and doctors will remind a new mom that her baby will cry. Therefore, when the little one cries, most moms find it normal and dismiss it. What most moms don't know is that even though they are already preparing themselves mentally for baby wails, they will be shocked to discover they cry even much more when born.

Even though baby cries more than thought he would, it is definitely normal that he is crying. He probably needs a nap, to eat, a diaper change has gas or just needs some tender love and care. If all these are sorted out, chances are he will calm down until he needs something again.

There could be a red flag, however, if your baby continues to cry for a long time after all his needs have been met. High chances are that he is sick. He could have gastrointestinal reflux (GERD). He may not be properly digesting formula, his stomach may reject the breast milk, or he could have colic, a disorder that causes extended crying spells whose cause is unknown.

It is therefore advisable to check with your pediatrician in order to identify the actual problem.

3MAKES JERKY MOVEMENTS

According to Healthy Children.org, jerky movements are common in babies in their first weeks after birth. Sleep myoclonus is probably something you have not heard before, but if

little bundle of joy jerks suddenly while sleeping, or twitches involuntarily, there's a chance he has sleep myoclonus and it could be upsetting him and the quality of his sleep.

Benign neonatal sleep myoclonus (BNSM) is a condition most people mistake for a seizure in the baby's first month.

BNSM is in no way related to epilepsy and it normally occurs while the baby is sleeping. It is characterized by extreme lightning-fast jerks. It is a mild condition that normally disappears on its own within the first year, but the sad news is that the condition can prolong for up to three years.

Seeing child experience such symptoms especially day in, day out, can be very scary and this may cause a mom, especially one who's not a professional doctor to be constantly worried thinking it's an epileptic seizure.

Even though it doesn't cause harm to baby and should go away after a year, it will definitely give a parent a scare and it could probably be a sign of something more serious. Best to talk to the doctor about it.

2ALWAYS SLEEPING

Doesn't sound like a cause for alarm, matter of fact most mums wish their babies slept a little bit more so they can catch some sleep. Newborn babies love to sleep too, other than eating obviously! The Baby Sleep Site reminds us that babies sleep a lot. During the first week after birth, a newborn spends most of its time sleeping throughout the day and night. Although they sleep a lot, they also wake up a lot because they are hungry or their diapers are wet.

A newborn will on average spend close to 18-hours a day sleeping. Although it is normal, some cases of oversleeping could be considered unhealthy. If the baby sleeps for very long stretches of time and has to be wakened for feeding, something is probably wrong.

While you could have been blessed with a baby who loves naps, there is also a probability there is a bigger problem in play such as jaundice or an infection. If mother feel that baby is napping a little too much, it is advisable to inform pediatrician.

1ALL BLOCKED UP

It is a very stressful ordeal for both the baby and the family. It is normally characterized by irritability, crankiness and a tummy ache.

Cases of babies not pooping for 20 days have been reported. This can be healthy, but unfortunately it happens constantly and to many babies. Any mom would wonder why, but several factors will obviously cause this, including the age of the baby and whether the baby is being fed via the bottle or breastfed.

If mother have come from the hospital with newborn and it's been three days since he went number two, it is probably safe to consult pediatrician.

Professionals state that a baby who is breastfeeding should poop up to five times a day. Although constipation is common, it can be precipitated by underlying medical ailments including botulism, hypothyroidism or various food allergies.

Apart from observing the baby for the above stated danger signs, the baby should be weighed daily at same time. Also monitor vital signs regularly

12.PREVENTION OF INFECTIONS

Neonate's defenses against infection are not mature so they are susceptible to infection.

Following things must be kept in mind to prevent them from infection

* All personnel coming in contact with the baby should be free from infection

* Hand washing should be practiced strictly

* Strict aseptic precautions should be taken while handling the baby

* The personal hygiene of mother and baby should be maintained

* Restrict the number of visitors attending the baby

CLEAN CHAIN'

1. ***Clean delivery (WHO's six cleans)***
   - Clean attendant's hands (washed with soap)
   - Clean delivery surface
   - Clean cord- cutting instrument (i.e. razor, blade)
   - Clean string to tie cord
   - Clean cloth to cover the baby
   - Clean cloth to cover the mother
2. ***After delivery***
   - All caregivers should wash hands before handling the baby
   - Feed only breast milk
   - Keep the cord clean and dry; do not apply anything
   - Use a clean absorbent cloth as a diaper/napkin
   - Wash your hands after changing diaper/napkin. Keep the baby clothed and wrapped with the head covered

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13.CARE OF BOWEL AND BLADDER

- If the neonate fails to pass urine and stool within 24 hours of birth, it should be notified to the physician.

- The urine output is about 200-300 ml by the end of first week of life so neonate voids about 15-20 times in a day.

- Diaper should be changed as soon as wet.

- The neonate also passes stool frequently so diaper area should be cleaned with mild soap and water.

- The baby should be kept clean and dry

14.SAFETY OF NEWBORN

- The personal hygiene of both baby and mother should be maintained to prevent infections.

- The baby should be given sponge bath daily in summers and every alternate day in winters.

- Care should be taken to prevent chilling and draughts while giving dip bath to the baby.

- Lukewarm water and mild baby soap should be used for giving baby bath.

- Special attention should be paid to skin creases at axilla, neck, groin and thighs.

- Vernix caseosa should not be rubbed off during bath

- After giving bath, dry the baby thoroughly and put on soft clothes.

- The umbilical stump should be cleaned using Betadine solution.

- The cord dries and falls off within 10-14 days.

- Eye care should also be done daily using sterile swabs dipped in sterile water.

- Eyes should be cleaned from inner canthus to outer canthus using separate swab for each eye

14.1 Safety tips

- When holding newborn baby, make sure to support their head. Although they are stronger than think, their neck muscles will remain weak for the first few months of life.
- Buy a car seat that meets national safety standards, whether it is new or used. Make sure it is properly installed according to the manufacturer's instructions before baby is discharged from hospital. newborn baby may not like being strapped into the car seat at first, but soon they will become accustomed to it.
- Make sure all your newborn baby's other equipment, including cribs, strollers, carriers, bassinets, change tables, playpens, and toys, meet national safety standards. Second-hand equipment also needs to meet the safety standards.
- Never shake newborn baby. Sometimes baby's crying may push to the limit, and may feel like shaking baby out of frustration. However, shaking baby can really damage their brain
- Avoid heating newborn baby's bottle in the microwave. You may think that the bottle is warm to touch, but the formula inside could be much hotter than expected. Always shake the bottle well and check the temperature before giving it to baby.
- Prevent falls by keeping one hand on newborn baby at all times if they are on bed, a change table, or another place where they could fall. During diaper changes, keep diapers and clothing within easy reach.
- Never leave newborn baby alone, or in the care of a child, when they are in the bathtub. A baby can drown in just 5 cm (two inches) of water! Use a small baby bathtub to bathe newborn baby, to lessen the chances of them sliding under the surface of the water. Make sure the bathwater is lukewarm, not hot.
- Do not leave newborn baby alone with a pet.
- Keep emergency phone numbers on hand, just in case.

15.PARENTAL TEACHING AND FOLLOW UP

- The period when mother is in post natal ward can be utilized for teaching the mother about all aspects of baby care.

- Parents are taught to observe the child's daily behavior related to feeding, sleep, activity, cry esmination etc.
- Parents need to be told about holding the baby, baby bath, eye and cord care, feeding nutritional supplements, immunization, prevention from infection and follow- up.
- The parents should Educated about the danger signs in the baby, which if present require immediate hospitalization

SUMMARY

The first hour after birth has a major influence on the survival, future health, and well being of a newly born infant. The health workers have an important role at this time. The care they provide during this period is critical in helping to prevent complications and ensuring survival. All mothers need help, support, and advice in the initial few days after delivery to ensure proper care of their newly born baby. The basic needs indicate that a baby's survival is totally dependent upon her mother and other caregivers. Therefore it is important to provide proper care to all the neonates immediately after birth. All newborns require essential newborn care to minimize the risk of illness and maximize their growth and development. This care will also prevent many newborn emergencies

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QUESTIONNAIRE

STRUCTURED KNOWLEDGE QUESTIONNAIRE

ON

NEWBORN CARE

Code No:

Section A

Demographic data

Section B

1. **Knowledge regarding newborn care**
2. **Knowledge regarding immediate care at birth**
3. **Knowledge regarding Breast feeding**
4. **Knowledge regarding Neonatal examination**
5. **Knowledge regarding neonatal resuscitation**
6. **Knowledge regarding routine care of newborn**

Section A : Demographic Data:

1.Age in Years

a) 18-25 ( )

b) 26-30 ( )

c) 31-35 ( )

d) more than 36 ( )

2. Marital Status

a. Married ( )

b. Unmarried ( )

3. Religion

a) Hindu ( )

b) Muslim ( )

c) Sikh ( )

d) Christian ( )

4. Educational Qualification

a. ANM ( )

b. GNM ( )

c. B.sc Nursing ( )

d. Post basic B.sc Nursing ( )

6.Experience

a. 0-5years ( )

b.6-10 years ( )

c.10-15 years ( )

d. more than 15 years ( )

7.Source of information

a) mass media ( )
b) working area ( )
c) health care workers ( )
d) family members ( )
e) other ( )

Section B

1. **Knowledge regarding newborn care**
2. **Knowledge regarding immediate care at birth**
3. **Knowledge regarding Breast feeding**
4. **Knowledge regarding Neonatal examination**
5. **Knowledge regarding neonatal resuscitation**
6. **Knowledge regarding routine care of newborn**

1.Knowledge regarding newborn care

1. The child that is recently born is called
   a. Newborn
   b. Baby
   c. Infant
   d. Toddler
2. Newborn care is a care applied
   a. After 7 days of birth
   b. After 14 days of birth
   c. Immediately the child become one month age
   d. Immediately after birth till 7 days
3. The purposes of newborn care includes
   a. Identify newborn abnormalities
   b. Promote early maternal attachment
   c. Provide safe environment
   d. All the above

2.Knowledge regarding immediate care at birth

4. Immediate care of newborn includes
   a. Circulation
   b. Airway
   c. Breathing
   d. All the above
5. Circulation includes

a. Chest compression
b. Medication
c. a and b
d. bathing

6. Breathing can be initiated by
a. Tactile stimulation
b. Keep the baby in isolation
c. Feeding the baby
d. Clothing the baby

7.The normal weight of the newborn

a. 1-2 kg

b. 2.5-3kg

c. 3-4 kg

d. 3 kg and above

8.. The normal length of the newborn baby

a. 40-45 cm

b. 45-50 cm

c. 50-55cm

d.55-60cm

9.Cord can be cut ..... cm away from the abdomen

a. 3

b.4

c.5

d.6

10. Apical beat of newborn ranges from

a. 60-70 beats/minute

b.70-80 beats/minute

c..80-100 beats / minute

d.120-140 beats/ minute

11. The white greasy substance that covers the newborn body

a. Vernix caseosa

b. Milia

c. Colostrum

d. Colosma

12. The delivery room temperature should be

a. 20-25’c

b.25-30’c

c.30-35’c

d.35-40’c

3.Knowledge regarding Breast feeding

13. Breast feeding is initiated as soon as possible to prevent

a. Neonatal sepsis

b. Baby ambulation

c.Neonatal hyperglycaemia

d.Neonatal hyperbilirubenemia

14. Colostrum secreted

a. before the birth of the baby

b. First 2-3 days after birth

c. After 7 days of birth

d. After one month of birth

15. The newborn voids about

a. 10-15 times per day

b.15-20 times per day

c.20-25 times per day

d.26-30 times per day

16. Milk secretion reflex is induced by

a. Progesteron

b. Voveron

c. oxytocin

d.Linolin

17. Exclusive breastfeeding menas

a. Breast feeding for newborn in the first hour

b. Breast feeding for newborn within fist 24 hours

c. Breast feeding for newborn from birth to one month

d. . Breast feeding for newborn from birth to six month

18. Protein level in Human milk

a. 0.5 gm/dl

b.0.6gm/dl

c.0.7gm/dl

d.0.8gm/dl

19. Breast milk can be stored in room temperature

a. 50 to 85 F

b. 60-120 F

c.10-20 F

D.100-120 F

4.Knowledge regarding Neonatal examintion

20.Temperature of the baby can be maintained by

a. Dry the baby immediately after birth
b. Put identification band on baby's hand
c. Hold the baby
d. Handover the baby to mother

21. APGAR stands for

1. Airway, Pulse, Grimace, Activity, Respiration
2. Appearance, Pulse , Grimace, Activity, Respiration
3. Airway, Pulse, Grimace, Appearance, Respiration
4. Appearance, Pressure, Grimace, Airway, Respiration

22. The scoring system of severely depressed, moderately depressed and excellent condition in APGAR score

1. 0-3;4-6;7-10
2. 10-30;40-60;70-100

3. 1-25;26-50:51-75
4. 1-50;51-100;101-150

23.The neurological assessment includes

a. Muscle tone
b. Joint mobility
c. Automatic reflexes
d. All the above

24.Reflexes are

a. Voluntary movements
b. Involuntary movements
c. A and B
d. Respiratory movements

25.The stimulation and response of blinking reflex are

a. Light flash on eye and baby stares
b. Light flash and baby closes eyes
c. Put of light and baby opens the eyes
d. Put of light and baby closes the eyes

26.Moro reflex disappears after

a. 1-2 month
b. 2-3 month
c. 3-4 month
d. 4-5 month

27.Rooting reflex means

a. Cheek stroked and baby turns head , opens and begin sucking
b. Cheek stroked and baby turns body
c. Mouth stroked and baby opens the mouth for sucking
d. Chin stroked and baby turns head, opens and begin sucking

28. Ballord score includes

a. Physical maturity

b. Neuromuscular maturity

c. a and b

d. Nutritional maturity

29. Lanugo means

a. soft downy hair on a baby's body

b.

b. Soft healthy diet for newborn

c. Small patches on the skin of newborn

d. White patches on the lips of newborn

5..Knowledge regarding neonatal resuscitation

30.TABC of Respiration

a. Tactile, Airway, Breathing, Circulation
b. Temperature, Airway, Breathing, Circulation
c. Tactile, Airway, bathing, circulation
d. Temperature, Airway, Bathing, Circulation

31The position of the baby during neonatal resuscitation

a. Positioned on back and neck slightly extended
b. Positioned on supine and neck extended
c. Positioned on back
d. Positioned on supine

32.During neonatal resuscitation, suctioning starts from and ends in

a. Nostrils, Mouth
b. Mouth, Nostrils
c. Oropharynx, Pharynx
d. Nostrils, Pharynx

33.Positive pressure ventilation can be given when the respiratory rate falls below

a. 60 beats per minute
b. 80 beats per minute
c. 100 beats per minute
d. 120 beats per minute

34.The drugs which is commonly used in neonatal resuscitation

a. Adrenaline
b. Soda bicarbonate
c. Nalaxone
d. All the above

6.Knowledge regarding routine care of newborn

35. The neutral thermal environment for a newborn

a. 36.5 – 37.2 degrees Celsius.

b. 35.6- 38.2 degree Celsius

c. 40-45 degree Celsius

d.30-35 degree Celsius

36. The incubator temperature should be maintained at

a. 35’c

b.36’c

c.37’c

d.38’c

37.Rooming in has the following advantage

a. Mother baby interaction and bonding

b. Relieves anxiety

c. Early initiation of breast feeding

d.All the above

38.The frequency of feeding in zero to four months

a.one to five feeding

b. five to ten feeding

c.eleven to fifteen feeding

d. fifteen to twenty feeding

39. Baby regains birth weight

a. 5-10 days

b. 10-14 days

c.15-30 days

d. within a month

40.The newborn normal respiratory rate

a. 20-30 beats per minute

b.30-40 beats per minute

c. 40-60 beats per minute

d.60-80 beats per minute

41. The newborn normal blood pressure

a. 64/41 mm of hg

b.80/60 mm of hg

c.100-120 mm of hg

120-140 mm of hg

42.The immunization given at birth

a. BCG

b.Diptheria

c. Pertusis

d. Tetanus

43. BCG vaccination is given to prevent

a. Tuberculosis

b. Malaria

c. Diptheria

d. Tetanus

44. The first stool passed by the newborn

a. Epstein pearl

b. candida albicans

c. Meconium

d. Septicemia

45.The stool of newborn after three to four days

a. become less sticky

b. become mustard yellow

c. greenish yellow

d. yellow

46. The abnormal vaginal bleeding in the newborn

a. Menstruation

b. Amenorrhea

c. Pseudo menstruation

d. Amenstruation

47. The cord dries and fall of within

a. 1-5 days

b.5-10 days

c.10-15 days

d.15-20 days

48. Eye care can be given from

a. Inner canthus to outer canthus

b. Outer canthus to inner canthus

c. Upper eyelid to lower eyelid

d. Lower eyelid to upper eyelid

49. The presence of more bilirubin in blood leads to

a. anemia

b. insomnia

c. Jaundice

d. Hepatomegaly

50. The treatment of hyperbilirubinemia in a newborn

a. Light therapy

b. Physiotherapy

c. Photo therapy

d. Exercise

Answer keys

1.a	11.a	21.b	31.a	41.a
2.d	12.b	22.a	32.b	42.a
3.d	13.a	23.d	33.c	43.a
4.d	14.b	24.b	34.d	44.c
5.c	15.b	25.b	35.a	45.a
6.a	16.a	26.c	36.a	46.c
7.b	17.d	27.a	37.d	47.b
8.b	18.c	28.c	38.b	48.a
9.c	19.a	29.a	39.b	49.c
10.d	20.a	30.b	40.c	50.c

OSCE CHECKLIST

IMMEDIATE CARE AT BIRTH

Immediate Newborn Care Checklist

Directions:

Rate the performance of each step or task using the following scale

1= Performs the step or task completely and correctly

0=Is unable to perform the step or task completely and correctly

N/A(Not Applicable)= Step was not needed

Step/Task	Yes	No	N/A
a.Care of newborn at delivery			
1. When the head is delivered, wipe the mouth and nose with gauze.			
2.When the baby is fully born, place the baby on a clean, dry towel or blanket on the mother's abdomen.			
3. Note the time of birth and the sex of the baby and announce them loudly enough to inform the mother			
4. Wipe the eyes and face and thoroughly dry the baby except the hands			
5. Stimulate the baby while drying by rubbing up and down along the baby's spine with the heel of your hand			
6.Assess the baby's breathing while drying and stimulating.			
7 If the baby is not crying or breathing well within 30 seconds of birth, clamp and cut the cord and begin resuscitation (see checklist for neonatal resuscitation)			
8.If the baby is breathing normally, continue with the other components of essential newborn care			
9. Remove the wet cloth and place the baby skin-to-skin on the mother's chest			
10. Cover the baby with a clean, dry cloth including the head.			
11. Check APGAR score at first minute			
12. Check APGAR score at fifth minute			
13. Take action if the APGAR score is low Check			
b. Umbilical cord care			
14.Wait for 2-3 minutes after birth or until the cord ceases to pulsate, whichever comes first, before clamping and cutting the cord.			
15.Place one clamp on the cord where convenient. Pinch the cord below the clamp, push the blood in the cord 2 cm towards the placenta, pinch the cord and place the second clamp. Cut the cord between the two clamps using a sterile blade or scissors.			
c. Eye care			
16. Instill eye drops (tetracycline or erythromycin), one drop in each eye.			

When using an ointment, depress the lower eyelid and place a length/strip of the ointment inside the lid from the inner to the outer edge of the eye. Do the same for the other eye			
17. Make sure that the tip of the bottle or the tube does not touch the eye of the baby or other objects			
d. Identification of the baby			
18. Place an identification band, preferably two—one on the wrist and the other on the ankle of the baby—noting the name of the mother and that of the father (where available), the sex of the baby, and date and time of the delivery.			
e.Maintain the baby's body temperature/thermal protection			
19. Keep the baby warm, ideally by keeping him/her in skin-to-skin contact on the mother's chest, with the body and head covered by a cloth			
20. If the baby cannot be placed in skin-to-skin contact in case of a Cesarean section or if the mother is ill, wrap the baby well and cover the head			
21. Check the baby's axillary temperature with a thermometer.			
f.Administer vitamin K1			
22. Explain to the mother that an injection will be required to prevent hemorrhage in the baby.			
23. Collect all the necessary supplies: disposable syringe (preferably 1 mL) with needle, vitamin K, alcohol, pieces of gauze/cotton, preferably sterile.			
24. Wipe the injection site with alcohol soaked cotton or gauze.			
25. Inject the drug intramuscularly in the antero-lateral part of the thigh: 1 mg for a normal weight baby and 0.5 for a baby weighing less than 1500 grams.			
g.Commence exclusive breastfeeding			
26. Support the mother in breastfeeding her baby within one hour of birth and before their transfer out of the delivery room.			
f.Verify that the baby's mouth is latched on well at the breast			
27. The baby is belly to belly with the mother.			
28. The baby's nose and chin are touching the breast.			
29. The mouth is open wide.			
30. All or most of the areola is inside the mouth, especially the lower part, so that the upper part of the areola is more visible than the lower part.			
31. The baby's lips are everted.			
g.Briefly counsel the mother			
32. On the importance of early, exclusive breastfeeding and of colostrum in protecting the baby against infections.			
33. To feed frequently on demand, day and night.			

34. Not to give any liquids (including water) or solids, other than breast milk.			
35. Not to apply anything harmful to the cord, such as ash, mud, clay, or herbal preparations.			
36. To keep the baby warm, if necessary by skin-to-skin contact, and check the temperature by touching the hands, feet, and abdomen to ensure that they are all warm but not too hot.			
37. To call the care provider if there is any problem.			
h.Weigh the baby			
38. Delay taking the weight of the baby until he/she is stable and warm and after first breast feeding.			
39. Place a cleam cloth/paper on the pan of the weighing scale.			
40. Make the necessary adjustments to bring the needle/pointer back to “zero.”			
41. Place the baby on the cloth/paper. If the cloth is large enough, fold the sides to cover the baby.			
42. Note the weight of the baby when the pan is not moving.			
43. Record the weight of the baby in the relevant records/registers and inform the mother.			
44. Do not leave the baby unattended on the scale.			
i.Decontamination, cleaning, and sterilization			
45. Ensure the proper disposal of waste and decontamination of the equipment and supplies that can be reused.			
46. Remove the gloves after having dipped them in the decontamination solution.			
47. Wash hands and air-dry them or wipe them with a clean cloth.			
48. Replace all items after cleaning/sterilization and replenish the disposable/consumable items to be ready for the next delivery.			
j.Record all the key data/information			
49. **Note** all the key data/information in partograph/cards/records of the mother and baby/registers, based on the recommendations of the facility authorities.			
k.Ensure follow-up of the mother and the baby			
50. Monitor mother (B/P, pulse, fundus, bleeding, bladder) and baby (breathing, suck, temp, cord) every 15 minutes for 2 hours, every 30 minutes for 1 hour, and then every 1 hour for 3 hours. Record findings.			

BREAST FEEDING

Breast feeding Checklist

Directions:

Rate the performance of each step or task using the following scale

1= Performs the step or task completely and correctly

0=Is unable to perform the step or task completely and correctly

Step/Task	Yes	No
BREAST FEEDING		
1.GENERAL OBSERVATION		
1. Mother looks healthy		
2. Mother relaxed and comfortable		
3. Baby looks healthy		
4. Baby calm and relaxed		
2.BREAST		
1. Breasts look healthy		
2. Nipples stand out, protractile		
3. No pain or discomfort		
4. Breast well supported, with fingers away from nipple		
3.BABY'S POSITION		
1. Baby's head and body in line		
2. Baby held close to mother's body		
3. Baby's whole body supported		
4. Baby facing breast, nose to nipple		
4.ATTACHMENT		
1. More areola seen above baby's top lip		
2. Baby's mouth open wide		
3. Lower lip turned outwards		
4. Baby's chin touches breast		
5.SUCKING		
1. Slow, deep sucks with pauses		
2. Cheeks round when suckling		
3. Baby releases breast when finished		

NEONATAL ASSESMENT

Neonatal examination Checklist

Directions:

Rate the performance of each step or task using the following scale

1= Performs the step or task completely and correctly

0=Is unable to perform the step or task completely and correctly

N/A(Not Applicable)= Step was not needed

Step/Task	Yes	No	N / A
1.GENERAL EXAMINATION			
Posture: generalized flexion			
Activity: alert and active.			
Cry: Normal			
Color: The entire body and extremities are pink.			
Vital signs:			
a. Temperature: 35.5 C 37.5C(axiliary temperature)			
b. Heart rate: 120- 140 beats/minute			
c. Respiration rate: 40-60 breaths per minute			
d. Blood pressure:			
2.ANTHROPOMETRIC ASSESSMENT			
Weight: The body weight of the neonate on an average is 2,5-3 kg			
Length (Head to heel): The average length of a neonate is 45.50 cm.			
Head circumferences: The normal head circumference is 33.35 cm.			
Chest circumference: The normal head circumference is 31-33 cm			
3. **HEAD TO TOE EXAMINATION**			
Skin: The neonate's skin is soft, smooth and puffy.			
Head: Newborn's skull bones are not completely fused.			
Face: Examine face for position and symmetry			
Eyes: Examine eyes for position and symmetry.			
Ears: In a term infant, the ear cartilage is well formed.			
Nose: Examine nose for its shape and nasal bridge			
Mouth: The mouth and throat can be examined when the neonate is crying or yawning for its shape and size			
Chest: The chest of newborn is barrel shaped.			
Abdomen: the abdomen is soft and no palpable mass			
Feet and Hands: Creases, number of digits in feet and hands and range of motion			
Female Genitalia:			
a. the labia majora cover the labía minora and clitoris is invisible only on			

separating labia			
b. The urethral opening is situated behind clitoris			
c. Vaginal bloody discharge (pseudo menstruation) may be noticed			
Male Genitalia:			
a. scrotum is large, pendulous, darkly pigmented			
b. testes are descended			
c. . The penis should be inspected for location of urethral opening			
Back and Spine: Inspect the spine for any mass , opening , any tuft of hair or protruding sac			
4.NEUROLOGICAL EXAMINATION			
Muscle tone: Posture , Passive Tone and Active Tone			
Joint mobility : more flexible and relaxed.			
Certain Automatic Reflexes: Action and reaction to reflexes assessed			
Body Movements: active, alert and moves extremities actively.			
5.ASSESSMENT OF REFLEXES(check for reflex appearance)			
Reflexes of Eye			
19. **Blinking**- Infant blinks at sudden appearance or bright light or approach of any object towards eye			
20. **Pupillary reaction**- Pupil constrict when bright light falls on it			
21. **Doll's eye-** As head is moved to right or left, eye leg behind and do not immediately adjust to new position			
(b)Reflexes of Nose			
22. **Sneeze**- Spontaneous response of nasal passage to any irritant			
23. **Glabellar**- Tapping briskly on bridge of nose cause eyes to close tightly			
(c)Reflexes of mouth			
24. **Rooting**- The infant turns his head towards any object that touches his cheeks and actively seeks the nipple and begins to suck			
25. **Sucking**- Baby begin to suck in response to stimulation of circumoral area			
26. **Gag-** Stimulation of posterior pharynx by food or suction cause infant to gag			
27. **Extrusion**- When tongue is touched or depressed, infant respond by forcing it outward			
28. **Cough**- Irritation of mucous membrane of larynx cause cough			
(d).Reflexes of Extremities			
29. **Grasp-** Touching palms of hands or soles of feet near base of digits cause flexion of hands (palmar grasp) and soles.			
30. **Babinski**- Stroking outer sole of foot upward from heel across ball of			

foot cause toes to hyper extend.			
(e)Mass Reflexes			
31. **Moro's-** When loud voice is made or there is sudden change in equilibrium. It cause sudden extension and abduction of extremities and fanning of fingers			
32. **Perez-** When infant is prone on a firm surface, thumb is pressed along spine from sacrum to neck, infant respond by crying, flexing extremities and elevating pelvis and head and lordosis of spine			
33. **Tonic neck-** When infant's head is turned to one side , arm and leg extend on that side and opposite arm and leg flex			
34. **Galant reflex-** Stroking infant back alongside spine cause hip to move towards stimulated side			
35. **Dance or stepping-** If infant is held such that sole of foot touches a hard surface, there is reciprocal flexion and extension of legs			
36. **Crawl-** When placed on abdomen, infant makes crawling movement			
6.ESTIMATION OF GESTATIONAL AGE			
Physical maturity			
Skin texture.: Skin may be sticky, smooth, or peeling.			
Lanugo: Soft downy hair on a body of full-term babies			
Plantar creases: Creases on the soles of the feet			
Breast: The thickness and size of the breast tissue and the areola			
Eyes and ears. Eyelids are checked. The amount of cartilage and stiffness of the ear tissue are also noted			
Male genitals. The presence of testes and scrotum, from smooth to wrinkled,			
Female genitals. The appearance and size of the clitoris and the labia are noted			
Neuromuscular maturity			
Posture. How the baby holds his or her arms and legs.			
Square window. How far the baby's hands can be flexed toward the wrist.			
Arm recoil. How well the baby's arms spring back to a flexed position.			
Popliteal angle. How well the baby's knees bend and straighten.			
Scarf sign. How far the elbows can be moved across the baby's chest.			
Heel to ear. How close the baby's feet can be moved to the ears.			

NEONATAL RESUSCITATION

Neonatal Resuscitation Checklist

Directions:

Rate the performance of each step or task using the following scale

1= Performs the step or task completely and correctly

0=Is unable to perform the step or task completely and correctly

Step/Task	Yes	No
PREPARATION FOR RESUSCITATION		
1. Calls out time of birth		
2. Maintains warmth		
3.Newly born baby is received in a cloth:		
▪ Dries baby		
▪ Breathing assessed while drying		
▪ Wet cloth discarded		
▪ Baby wrapped in a dry cloth		
IF BABY NOT BREATHING OR ONLY GASPING		
▪ Ties and cuts cord quickly		
▪ Transfers to a dry clean and warm surface		
OPEN THE AIRWAY		
1.Positions baby's head so that it is slightly extended		
2. Uses suction:		
▪ First to the mouth		
▪ Introduces tube into mouth, 5 cm from lips		
▪ Suctions on withdrawal		
3. Uses suction:		
▪ To the nose		
▪ Introduces tube 3 cm into each nostril		
▪ Suctions on withdrawal		
4 Repeats suction if necessary:		
▪ No more than twice		
▪ No longer than 20 seconds		
VENTILATION		
1. Chooses correct size mask		
2. Places mask to cover chin, mouth and nose		
3. Good seal formed		
4. Bag squeezed 2 or 3 times, according to size with:		
▪ 2 fingers		

■ whole hand		
5. Observes rise of chest		
6. If chest not rising:		
■ Head repositioned		
■ Mask seal checked		
7. Bag squeezed slightly harder with whole hand		
8. Once a good seal and chest rising: Ventilates 40 squeezes per minute until newborn crying or spontaneous breathing		
STOPPING VENTILATION		
1. Stops and assesses baby:		
■ Looks at chest for in-drawing		
■ Counts breaths per minute		
■ Stops ventilation if breathing more than 30 breaths per minute and no chest in-drawing		
2. Puts the baby in skin-to-skin contact		
3. Monitors every 15 minutes for breathing and warmth		
4. Explains situation to the mother		
5. Records the event		
CONTINUING VENTILATION		
1. If less than 30 breaths per minute or severe chest in-drawing		
2. Arranges for immediate referral		
3 Explains situation to the mother		
4. Ventilation continues during referral		
5. Record on:		
■ Referral form		
■ Labour record		

ROUTINE CARE OF NEWBORN

Routine Examination of newborn Checklist

Directions:

Rate the performance of each step or task using the following scale

1= Performs the step or task completely and correctly

0=Is unable to perform the step or task completely and correctly

N/A(Not Applicable)= Step was not needed

Step/Task	Yes	No	N / A
1.SAFE AND THERMO NEUTRAL ENVIRONMENT			
1. neutral thermal environment maintained			
2. core body temperature between 36.5 – 37.2 degrees Celsius			
2.BATHING			
1. Prepared all the necessary articles for bathing			
2. Prepared the baby for bath			
3. Steps of procedure for bathing is followed			
4. Made baby comfortable after bath			
5. Replace the articles			
3.ROOMING IN			
1. Baby are kept with mother			
4.FEEDING			
1. Breast feeding provided to the baby regularly			
2. Mother and baby's position is maintained			
3. The baby is getting enough milk			
4. If formula feed, the normal amount of feed per day is maintained			
5. The baby has not developed any complaints after formula feed			
5. CORD CARE			
1. Clean the cord with a normal saline soft cotton			
2. Keep the cord dry			
3. Keep the diaper below the cord			
6. **PERSONAL HYGIENE**			
1. Maintained hand hygiene at every procedures			
2. Personal hygiene of the mother is maintained			
3. Personal hygiene of baby is maintained			
7.**VITAL SIGNS**			
1. Axillary temperature measured			
2. Heart rate checked			
3. Respiratory rate maintained			
4. Blood pressure monitored			
8.IMMUNIZATION			
1. BCG 0.1 ml intra dermal given on the left upper forearm			
2. Hepatitis B Birth dose 0.5 ml Intramuscularly given on the Anterio			

lateral side of left mid thigh			
3. OPV Birth dose 2 drops Orally given			
4. Any side effect due to immunization			
9.OBSERVATION OF EARLY SIGNS OF DISEASES			
1. Failure to pass meconium within 24 hours of birth			
2. Failure to pass urine within 48 hours of birth			
3. Bleeding from any site			
4. Failure to take feed			
5. Excessive crying			
6. Undue lethargy			
7. Jaundice within 24 hours of birth			
8. Hypothermia or hyperthermia			
9. Seizures			
10. Persistent vomiting or diarrhoea			
11. Breathing difficulty			
12. Evidence of superficial infection			
• oral thrush			
• conjunctivitis			
• umbilical cord infection			
• pustules on skin			
10. Prevention of Infection			
1. All personnel coming in contact with the baby free from infection			
2. Hand washing			
3. Strict aseptic precautions while handling the baby			
4. The personal hygiene of mother and baby is maintained			
5. Restrict more number of visitors attending the baby			
11 Care of bladder and bowel.			
Bladder			
1. The urine output is about 200-300 ml			
2. Neonate voids about 15-20 times in a day			
3. Diaper is changed as soon as wet			
Bowel			
1. **Days one to two**: Baby passes meconium. It will be black and tarry			
2. **Days two to four**: the stools will become less sticky, lighter in color and more liquid.			
3. **Days three to five**: the stools will be green-yellow to mustard-yellow, seedy and liquid			
4. **Days five and on**: the stools will be mustard-yellow, seedy and liquid.			
5. The baby is kept clean and dry			
12. SAFETY OF NEWBORN			
1. Care is taken to prevent chilling and draughts			
2. Lukewarm water and mild baby soap is used for giving baby bath.			
3. Special attention is paid to skin creases			
4. Vernix caseosa is not be rubbed off forcefully			

5. umbilical stump is cleaned using Betadine solution			
6. Eye care is done daily using sterile swabs dipped in sterile water			
7. Eyes are cleaned from inner canthus to outer canthus			
8. Used separate swab for each eye			
9. Support newborn head while holding			
10. All newborn equipments meet safety standards			
11. Never shake newborn baby to avoid shaken baby syndrome			
12. The bottle is not kept for boiling beyond the standard time			
13. check the temperature of the milk before giving it to baby			
14. The baby is not left alone			
15. Prevent falls			
13.PARENTAL TEACHING AND FOLLOW UP			
1.Observe the child's daily behaviour			
• feeding			
• sleep			
• activity			
• cry			
• elimination			
2.Parents need to be told about			
• holding the baby			
• baby bath			
• Eye care			
• Cord care			
• feeding nutritional supplements,			
• immunization			
• prevention from infection			
• follow- up.			
• Danger signs			